Chapter 3. Comments and Responses to Comments on the 1995 Draft Environmental Impact Report/Environmental Impact Statement

## Chapter 3. Comments and Responses to Comments on the 1995 Draft Environmental Impact Report/ Environmental Impact Statement

This chapter contains the comment letters received on the 1995 DEIR/EIS followed by responses to those individual comments. Comment letters and responses to comments are arranged in the following order:

Section A: Federal Agencies Section B: State Agencies Section C: Local Agencies

Section D: Special Interest Groups

Section E: Individuals Section F: Public Hearing

Each letter and each comment within a letter have been given a number. Responses are numbered so that they correspond to the appropriate comment. Where appropriate, responses are cross-referenced between letters or with a master response.

Changes to the text of the 1995 DEIR/EIS that are made in response to comments are shown with a line through the text that has been deleted (strikeout) or double underlining where new text has been added. These changes have been incorporated into the corresponding chapters in Volume 1 of this FEIS.

Table 3-1 provides a list of all agencies and persons who submitted comments on the 1995 DEIR/EIS during the public review period.

Table 3-1. List of Comment Letters on the 1995 DEIR/EIS for the Delta Wetlands Project

Category	Commenter	Date	Letter #
A. Federal Agencies	Advisory Council on Historic Preservation	10/25/95	A1
	U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service	10/26/95	A2
	Department of Health & Human Services, U.S. Public Health Service	11/20/95	A3
	U.S. Department of Commerce, Office of the Under Secretary for Oceans and Atmosphere (National Oceanic and Atmospheric Administration)	11/27/95	A4
	U.S. Department of the Interior, Office of the Secretary, Office of Environmental Policy and Compliance	12/14/95	A5
	U.S. Environmental Protection Agency, Region IX (Wetlands and Sediment Management)	12/21/95	A6
	U.S. Environmental Protection Agency, Region IX (Office of Federal Activities)	1/18/96	A7
B. State Agencies	Delta Protection Commission	9/15/95	B1
	California Department of Boating and Waterways	9/19/95	B2
	Northwest Information Center of the Historical Resources Information System	11/1/95	В3
	California Department of Water Resources	11/9/95	B4
	California State Lands Commission	11/21/95	B5
	California Department of Fish and Game	12/20/95	B6
	California Department of Water Resources	12/21/95	B7
	California Department of Transportation	12/21/95	B8
	California Resources Agency	12/21/95	B9
C. Local and Regional Agencies	Metropolitan Water District of Southern California	11/3/95	C1
	San Joaquin County Community Development Department	11/14/95	C2
	Shasta County Board of Supervisors	11/27/95	C3
	San Joaquin Tributaries Association	12/6/95	C4
	East Bay Regional Park District	12/12/95	C5

Table 3-1. Continued

Category	Commenter	Date	Letter =
	East Bay Municipal Utility District	12/14/95	C6
	Bradford Reclamation District No. 2059	12/14/95	C7
	Sacramento County Water Resources Division	12/20/95	C8
	Contra Costa Water District	12/20/95	C9
	San Joaquin County Department of Public Works	12/20/95	C10
	San Joaquin County Community Development Department	12/20/95	C11
	San Joaquin County Council of Governments	12/21/95	C12
	Contra Costa County Community Development Department	12/21/95	C13
	Metropolitan Water District of Southern California	12/21/95	C14
	Ironhouse Sanitary District	12/21/95	C15
	Reclamation District No. 830	12/21/95	C16
	Central Delta Water Agency et al. (Nomellini, Grilli & McDaniel)	12/21/95	C17
D. Special Interest Groups	Planning and Conservation League	10/4/95	D1
	California Sportfishing Protection Alliance	10/11/95	D2
	Shasta Lake Business Owners' Association	10/11/95	D3
	California Striped Bass Association	10/15/95	D4
	Central Valley Habitat Joint Venture	10/30/95	D5
	California Urban Water Agencies	11/1/95	D6
	California Waterfowl Association	11/20/95	D7
	Friends of the River	11/27/95	D8
	California Sportfishing Protection Alliance	12/13/95	D9
	California Native Plant Society	12/19/95	D10
	Natural Heritage Institute	12/20/95	D11
	The Bay Institute of San Francisco	12/21/95	D12
	Marin Audubon Society	12/21/95	D13
	California Urban Water Agencies	12/21/95	D14

Table 3-1. Continued

Category	Commenter	Date	Letter #
E. Individuals and Other			
Interested Parties	Rob Fletcher	10/18/95	E1
	George C. "Tim" Wilson	10/20/95	E2
	Daniel Wilson	10/20/95	E3
	Ellis M. "Steve" Stephens (Ellis Island Farms, Inc.)	10/26/95	E4
	Leisha Robertson (D&L Farms)	11/1/95	E5
	Kyser Shimasaki	11/20/95	E6
	Earl W. Cooley (Medford Island Habitat Conservation Area)	11/29/95	E7
	Paul and Liza Allen	12/10/95	E8
	Peter Margiotta	12/18/95	E9
	Robert C. and Jean M. Benson	12/18/95	E10
	California-Oregon Transmission Project	12/19/95	E11
	The Dutra Group	12/19/95	E12
	William Shelton	12/21/95	E13
	Delta Wetlands Properties (Ellison & Schneider)	12/20/95	E14
	Pacific Gas and Electric Company	12/20/95	E15
F. Public Hearing	Roger Lefebvre (Shasta Lake Business Owners' Association)	10/11/95	F1
	Paul Allen	10/11/95	F2
	Kevin Wolfe	10/11/95	F3
	Liza Allen	10/11/95	F4

# Section A. Federal Agencies

Advisory Council On Historic Preservation

The Old Post Office Building 1100 Pennsylvania Avenue, NW, #809 Washington, DC 20004 Reply to: 730 Simms Street, #401 Golden, Colorado 80401

October 25, 1995

Jim Monroe, P.E, Esq.
Chief, Sacramento/San Joaquin
Delta Office
Corps of Engineers
1325 J Street
Sacramento, CA 95814-2922

REF: Draft Executive Summary for the Environmental Impact Report and Environmental Impact Statement for the Delta Wetlands Project

Dear Mr. Monroe:

On October 4, 1995, we received the Executive Summary for the draft Environmental Impact Report and Environmental Impact Statement (Summary) for the Delta Wetlands Project. The Summary (page 34-35) provides a general overview of the effects of the project on historic properties that are known to exist within the project area. Each of the Alternatives has the potential to have significant effects on historic properties, although Alternative 3 may effect more historic properties than Alternatives 1 or 2. Effects to historic properties will be cumulative as well as immediate.

The COE should consider the indirect effects of increased visitation to the area that will result from the development of recreation facilities. The COE might also consider including an historic preservation representative on the committee for the Delta Environmental Research Fund.

A1-1

Thank you for providing us with the opportunity to review and comment on this document. If you have questions concerning our comments, please do not hesitate to contact Catherine Cameron of our staff at (303) 231-5320.

Sincerely,

Claudia Nissley

Director, Western Office

of Review

#### **Advisory Council on Historic Preservation**

A1-1. The indirect effects on cultural resources from recreational use of the Delta Wetlands Project islands were addressed in Chapter 3M, "Cultural Resources", of the 1995 DEIR/EIS; see Chapter 3M in Volume 1 of this FEIS. The potential for increased vandalism and disturbance of archaeological resources caused by recreational use of the islands is identified under Impacts M-1, M-3, and M-6 for Alternatives 1 and 2, and under Impacts M-7, M-8, M-9, M-10, and M-12 for Alternative 3.

The committee for the environmental research fund described on page 2-9 of the 1995 DEIR/EIS (page 2-11 in FEIS Volume 1) would be administered by Delta Wetlands; an invited committee would be established to decide how the research funds would be allocated. Delta Wetlands has the discretion to appoint a historic preservation representative to the committee for the Delta Wetlands environmental research fund.

### Letter A2



UNITED STATES DEPARTMENT OF COMMERCE National Oceanic and Atmospheric Administration

NATIONAL MARINE FISHERIES SERVICE

Southwest Region 501 West Ocean Boulevard, Suite 4200 Long Beach, California 90802-4213 TEL (310) 980-4000; FAX (310) 980-4018

F/SW03:GRS

OCT 2 6 1995

Mr. Jim Monroe Chief, Sacramento/San Joaquin Delta Offices Department of the Army U. S. Army Engineer District, Sacramento Corps of Engineers 1325 J Street Sacramento, California 95814-2922

Dear Mr. Monroe:

Thank you for providing the National Marine Fisheries Service (NMFS) with the opportunity to comment on the Biological Assessment (BA) entitled: "Impacts of the Delta Wetlands Project on Fish Species."

#### General Comments on the Project Description

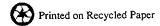
The Delta Wetlands (DW) project description outlines a wide range of project flexibility from providing DW discharge for export at the State Water Project (SWP) and Central Valley Project (CVP) to providing DW discharge for Delta outflow. Phrases such as "DW could choose", or "uncertain at times", or "most likely", or "may be sold or used" are used frequently in the BA's description of project operations. Specific operations in any particular water year are vague. Potential effects to the endangered Sacramento River winter-run chinook salmon could also range widely from beneficial to adverse depending on project operations and the destination of DW discharges.

The BA describes the DW project as designed to operate within the objectives of the State Water Resources Control Board (SWRCB) 1995 Water Quality Control Plan (WQCP) developed for the SWP and CVP. However, project alternative 1 requires a modification to the total delta inflow formula and project alternative 2 requires an exemption from the WQCP "percent inflow" export limit. The 1995 WQCP was developed to address the permits and licenses of the Bureau of Reclamation (Bureau) and the California Department of Water Resources (DWR) to appropriate water. Since the DW project falls outside the scope of the existing water right and the normal coordinated operation of the CVP and SWP, the SWRCB may choose to set additional or alternative terms and conditions upon diversions and discharges by the DW project.

**A2-1** 

A2-2





Although the SWP and CVP export facilities are described as integral components of the DW project, the Bureau and DWR have not participated in the development of the project proposal or committed to the purchase of DW discharges. Thus, incorporation of DW project operations into SWP/CVP operations is unclear and uncertain at present. NMFS will require more specific information regarding CVP and SWP operations from the Bureau and DWR to fully assess the potential effects of DW project water that is sold or "wheeled" through the existing Delta export facilities.

#### General Comments on the Impact Assessment for Winter-run Chinook

The BA relies on the use of a mortality index to evaluate the potential effects of Delta flow diversions and patterns on survival of juvenile winter-run chinock salmon during migration through the Delta. In the "Impacts Assessment" section of the BA, mortality values are presented several times without being referred to as indices. It is important to note that the values generated by the Jones & Stokes model are not predictive of actual levels of mortality and that these indices are valid for comparison purposes only.

In addition, the mortality indices generated by the Jones & Stokes model may significantly underestimate the level of mortality for several reasons:

- 1) The model assumes that juvenile salmon that continue down the Sacramento River below Georgiana Slough are not affected by DW or SWP/CVP operations. Fisheries investigations by the U.S. Fish and Wildlife Service have shown that juvenile salmon released in the Sacramento River at Ryde and in the lower San Joaquin River at Jersey Point are effected by SWP/CVP export operations. Therefore, the population at risk is likely to exceed the levels evaluated in the model because the geographic area of influence is broader than the area identified in the model.
- 2) The mortality model assumes all juvenile salmon are actively migrating through the Delta to the sea without regard to their time of arrival. By doing so, the model does not address the cumulative effects on rearing juvenile salmon. Juvenile winter-run chinook salmon which arrive in the Delta during the fall and early winter months are likely to reside in Delta waterways for several months. These fish will be subject to any and all adverse conditions created by DW operations until they undergo smoltification and emigration from the Delta during the early spring. The model may significantly underestimate mortality rates by assuming all fish in the area of risk have been entrained or emigrated after 10 days.
- 3) The Jones & Stokes model assumes the Delta Cross Channel gates are closed continuously from November 1 through late May.

A2-3

^ A2-4

A2-5

A2-6

A2-7

The 1995 WQCP provides for a total of 45 days of gate closure between November 1 and January 31. Thus, the number of fish which are diverted off the Sacramento River into the central Delta and subsequently lost due to project operations will be greater than estimated in the BA.

A2-7 cont'd

4) The DeltaSOS model simulates monthly DW operations and Delta hydrological conditions. However, daily conditions can vary widely from the monthly averages generated by the model. Juvenile chinook salmon will be responding to the daily and, even, hourly hydrological conditions in Delta. Large losses of fish may occur during brief periods of adverse hydrological conditions.

A2-8

#### Specific Comments

Page 1-3, Delta Export Demands, 2nd paragraph. At this time, the buyers or potential uses of the DW water are unknown, making the project description incomplete and analysis of the project effects difficult.

**A2-9** 

Page 1-3, Delta Water Quality Needs, 1st paragraph. Although the BA indicates the DW project could increase the supply of high-quality water for environmental benefits including Delta outflow, this type of operational scenario is not described in project Alternatives 1 or 2.

A2-10

Page 2-6, Habitat Island Diversions and Discharges. It is unclear if habitat island water diversions and discharges are designed to operate within the 1995 WQCP or any other operational criteria.

A2-11

Page 5-16, Cumulative Impacts, 2nd paragraph. Pursuant to the February 12, 1993, biological opinion issued by NMFS for winter-run chinook salmon, the Bureau maintains suitable habitat conditions (e.g. temperatures and flow) in the upper Sacramento River and a minimum carryover storage level in Shasta Reservoir. Thus, upstream conditions in the Sacramento River are likely to improve, rather than deteriorate, in future years for winter-run chinook salmon.

**A2-12** 

Page 5-16, Cumulative Impacts, 4th paragraph. The DW project could also result in reservoir water stored for a reduced period of time. Reservoir releases may increase earlier in the season, because DW water would be available for use later in the year. Reduced reservoir levels over the summer and fall months could result in adverse temperature conditions for spawning salmon and steelhead trout.

A2-13

Page 5-16, Summary of Potential Fishery Effects of the DW Project, Beneficial Effects, Foregone agricultural diversions. There is little overlap between the timing of the juvenile

A2-14

winter-run chinook salmon outmigration and the irrigation season for Delta agriculture. Thus, there would be little benefit for winter-run chinook salmon associated with the elimination of these diversions.

A2-14 cont'd

A2-15

#### Summary

The information provided in the BA is inadequate for the completion of formal section 7 consultation with NMFS for the endangered winter-run chinook salmon. However, meetings between my staff, Jones & Stokes, and the DW project have provided a significant amount of new information which should facilitate the successful completion of consultation. NMFS will continue to work with the DW project and their consultants to clarify the project description and further assessment of potential project effects on the endangered winter-run chinook salmon.

If you have any questions about these comments please call Ms. Penny Ruvelas at (707) 578-7513.

Sincerely,

Hida Diaz-Soltero Regional Director

cc: Robert Pine, USFWS
Debra McKee, CDFG
Dale Sweetnam, CDFG
Ken Bogdan, Jones and Stokes Associates

#### **National Marine Fisheries Service**

This letter comments on the biological assessment that addresses Delta Wetlands Project effects on fish species (Appendix F2 of the 1995 DEIR/EIS) and that was submitted to NMFS and USFWS in accordance with the requirements of Section 7 of the federal ESA.

A2-1. Since this comment letter was submitted, USACE has concluded formal consultation with USFWS and NMFS on project effects on listed fish species. As part of the consultation process for compliance with both the federal and California ESAs, USACE, the SWRCB, NMFS, USFWS, DFG, and Delta Wetlands agreed on the project operating parameters referred to as the FOC. The FOC, which have been incorporated into the proposed project, more closely define the operations of the proposed project.

NMFS subsequently issued no-jeopardy biological opinions regarding project effects on winter-run chinook salmon, Central Valley steelhead ESU, and Central Valley spring-run chinook salmon ESU. USFWS issued no-jeopardy biological opinions regarding project effects on delta smelt and splittail. DFG issued a no-jeopardy biological opinion regarding project effects on delta smelt and winter-run chinook salmon. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for details about the formal consultation and discussion of the biological opinion terms.

See Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program", regarding coordination of project operations with the SWP and CVP.

A2-2. As noted by the commenter, the Delta Wetlands Project—and any other in-Delta storage project—falls outside the scope of the existing water rights and the normal coordinated operations of the SWP and CVP. The project is designed and expected to operate within the objectives described in the 1995 WQCP. In-Delta storage was not anticipated as part of SWP and CVP operations, however; as a result, the 1995 WQCP does not address how discharges from in-Delta storage would be factored into the calculations of inflow in the export/inflow (E/I) ratio. The commenter is correct in stating that if the SWRCB were to approve Delta Wetlands' water right applications, it would specify in the project permits the terms and conditions under which Delta Wetlands would be allowed to operate.

The biological opinions issued for the Delta Wetlands Project by DFG, NMFS, and USFWS include some direction for interpretation of Delta Wetlands Project operations in the context of the 19995 WQCP E/I ratio. As stated in the USFWS biological opinion:

For the purposes of this biological opinion, discharges from the [Delta Wetlands] project are not counted as inflow to the Delta, as defined by the 1995 WQCP. Treatment of [Delta Wetlands] discharges as Delta inflow will constitute new information and may require further consultation.

The NMFS biological opinion includes similar language. Additionally, as stated in the NMFS biological opinion, the federal biological opinions are based on the assumption that:

[Delta Wetlands] discharge for export at the CVP/SWP would be regulated in a manner that the CVP/SWP export limits, as defined by the WQCP, are not exceeded.

- **A2-3.** See Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program".
- A2-4. As the commenter notes, the mortality values presented in the impact assessment are indices; these values are not predictive of actual mortality levels and are valid for comparison purposes only. Although the biological assessment discussion in some places failed to note that the mortality values are indices, this oversight was corrected in Chapter 3F of the 1995 DEIR/EIS. The mortality index is introduced as follows on page 3F-11 of the 1995 DEIR/EIS (page 3F-12 in FEIS Volume 1):

The mortality index should not be construed as the actual level of mortality that would occur because simulated monthly conditions cannot accurately characterize the complex conditions and variable time periods that affect survival during migration through the Delta. The mortality index provides a basis for comparing the effects of alternative Delta Wetlands operations on chinook salmon that could result from changes in diversions and Delta flows.

The discussions of impacts in the chapter correctly refer to the mortality values as indices.

A2-5. The mortality model used for the biological assessment and 1995 DEIR/EIS impact assessment, which was modified from a USFWS model (Kjelson et al. 1989), assumes that juvenile salmon that continue down the Sacramento River below Georgiana Slough are not affected by SWP/CVP export operations and would not be affected by Delta Wetlands operations. This assumption is consistent with the models developed by USFWS and used by EPA and other agencies; these models do not assume that export operations would affect juveniles moving down the Sacramento River (see page 3F-11 of the 1995 DEIR/EIS [FEIS page 3F-12] under "Methods for Assessing Effects on Chinook Salmon"). USFWS studies show that some tagged juveniles released at Ryde and Jersey Point have ended up at the export facilities; however, it cannot be concluded from these observations that juveniles migrating down the lower Sacramento River would be affected by export operations, and as noted above, such a conclusion is not consistent with the USFWS modeling assumptions.

The NMFS biological opinion, issued in 1997, addresses potential project effects on juvenile chinook salmon; see Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

- A2-6. Salvage records and Chipps Island surveys indicate that fish are most susceptible to entrainment in exports during the smolt life stage because smolts are actively moving. From these data, it is inferred that Delta Wetlands diversions would affect rearing juveniles less than they would affect smolts. The distribution used for the analysis is an adequate approximation of vulnerability. As described in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", the NMFS, USFWS, and DFG biological opinions address potential project effects on fish entrainment.
- A2-7. The commenter is correct in noting that the modeling used to assess impacts on winter-run salmon simulates continuous closure of the DCC gates during November through January, while the 1995 WQCP provides for a total of 45 days of DCC gate closure between November 1 and January 31. As noted in the impact assessment in Chapter 3F, the volume of flows in the DCC and Georgiana Slough would be the same under the Delta Wetlands Project as under the No-Project Alternative because CVP/SWP exports and Delta Wetlands diversions would not change the DCC and Georgiana Slough flows; therefore, any error in the modeling of DCC operations would apply both to simulations of the No-Project Alternative and to those of project operations. This difference is considered to have little, if any, effect on the outcome of the impact assessment. Furthermore, winter-run chinook salmon are most vulnerable during February and March. The NMFS biological opinion addresses potential project effects on juvenile chinook salmon; see Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".
- A2-8. Monthly simulations of operations (using DWR's model DWRSIM and USBR's model PROSIM) are currently the best available tools for estimating Delta inflows and upstream operations. The monthly operations model Delta Standards and Operations Simulation (DeltaSOS) uses the initial water budget developed from the results of simulations performed by DWR using DWRSIM. The impact assessment performed for the 1995 DEIR/EIS (and biological assessment) using the monthly operations model DeltaSOS is therefore consistent with the currently available assessment models and with current practices.

Both the 1995 DEIR/EIS (see Appendix A4) and the 2000 REIR/EIS (see Appendix F) include discussions of the potential daily Delta Wetlands operations that would be modified as daily Delta flows and salinity conditions change. Appendix F of the 2000 REIR/EIS indicates how the requirements identified in the FOC for the project would limit daily operations. Measures to protect fish include FOC terms that specify several periods of delay for the beginning of Delta Wetlands diversions and reductions in Delta Wetlands operations when the FMWT index is less than 239. The FOC also include provisions to reduce Delta Wetlands pumping or diversions if protected fish are observed in the required daily fish monitoring. The FOC terms are expected to protect fish from Delta Wetlands Project impacts under all possible conditions for daily Delta flows, salinity, and fish abundance. The RPMs in the state and federal biological opinions add further protections and compensation for incidental take of protected species.

The commenter states that "large losses of fish may occur during brief periods of adverse hydrological conditions". If "large" refers to a high percentage of the population, large losses of chinook salmon during brief periods would occur only when a large percentage of the chinook salmon population enters the Delta in a short period. Although such large, sudden influxes are observed for some species (e.g., striped bass eggs and larvae), available data indicate that this is not the case for chinook salmon.

- A2-9. The specific beneficial uses and areas of end use of Delta Wetlands water are unknown. The identities of the end users of Delta Wetlands water remain speculative because of the diverse interests and competing demands for water for municipal, agricultural, and environmental needs. Therefore, the 1995 DEIR/EIS and 2000 REIR/EIS analyses were performed based on the assumption that it would be too speculative to attempt to identify buyers of the water or specify the locations within the CVP and SWP service areas where the water would be put to beneficial use. As noted in response to Comment A2-7, the FOC terms are expected to protect fish from Delta Wetlands Project impacts under all possible conditions for daily Delta flows, salinity, and fish abundance. See also Master Response 3, "Areas of End Use and Potential Growth-Inducement Effects on Delta Wetlands Water Deliveries".
- **A2-10.** See Master Response 1, "Project Objectives: Analyzing Effects of Water Transfers, Banking, and Augmenting Outflow", for discussion regarding the use of Delta Wetlands discharges to provide water for outflow.
- **A2-11.** Under the proposed project, Delta Wetlands would divert water onto the habitat islands to provide water necessary to implement the HMP. Diversions and discharges of water to and from the habitat islands would not differ substantially from existing agricultural practices, and diversions to the habitat islands would be performed under Delta Wetlands' existing riparian and appropriative water rights. The FOC terms prohibit Delta Wetlands from discharging water for export from the habitat islands. For these reasons, the 1995 WQCP operational criteria for the CVP and SWP would not apply to habitat island operations.
- **A2-12.** The biological opinion issued by NMFS for effects of CVP operations on winter-run salmon ensures that existing conditions will be maintained, not that they will be improved. Although USBR will maintain the minimum level of Shasta Reservoir carryover storage specified in the biological opinion, average carryover storage is likely to decline in the future because of increased demands.
- **A2-13.** Delta Wetlands Project operations would not affect upstream reservoir releases. The project would need to be integrated with SWP and CVP operations for changes in such releases to occur. See Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program". It should be noted that minimum streamflows below the CVP and SWP upstream reservoirs are regulated by existing instream flow requirements, and streamflows could not be reduced below these minimums. Therefore, if the SWP or CVP purchases

- Delta Wetlands water as a replacement for upstream reservoir releases, the SWP and CVP would still need to meet these instream flow requirements.
- **A2-14.** The commenter is correct in stating that the benefit to chinook salmon from forgone agricultural diversions is probably small. Under current practices, however, there are winter agricultural diversions that correspond with the period of juvenile winter-run migration; therefore, discontinuing agricultural diversions onto the Delta Wetlands islands would benefit chinook salmon to some extent.
- **A2-15.** NMFS completed formal Section 7 consultation for the winter-run chinook salmon and issued a no-jeopardy biological opinion for the Delta Wetlands project in May 1997. A copy of the final biological opinion was provided in Appendix D of the 2000 REIR/EIS.



Centers for Disease Control and Prevention (CDC) Atlanta GA 30341-3724

November 20, 1995

U.S. Army Corps of Engineers Regulatory Branch Attention: Jim Monroe 1325 J Street, Room 1444 Sacramento, California 95814-2922

Dear Mr. Monroe:

We have completed our review of the Draft Environmental Impact Statement (DEIS) for the Delta Wetlands Project. We are responding on behalf of the U.S. Public Health Service.

We believe potential impacts on human health have been generally addressed, however, we do offer several comments for your consideration in preparing the final EIS. We were pleased to see the discussions on potential mosquito impacts and public health in this draft document

We noted that necessary residential displacements "will be compensated," however, our review did not reveal mention of the Uniform Relocation Assistance and Real Property Acquisition Act, or if adequate replacement housing was immediately available to affected households.

A3-1

Our review did not reveal a preferred alternative. In the Executive Summary, it is stated several times that "if the project description were modified to reduce the number of recreational facilities built on the DW project islands, the impacts could be reduced to a less-than-significant level". The Final EIS should clarify what level of construction is intended when a preferred alternative is identified in the FEIS.

A3-2

It is stated in "Impact E-11" that "as part of the recreational facility design, DW will install a new sewage disposal system at each facility consistent with San Joaquin County and Contra Costa County Requirements for sewage disposal systems and designs. Therefore, this impact is considered less than significant." There are no assurances given, however, that requested permits will be issued. It is stated that the disposal system planned will be individual septic systems. To receive permits for these systems, the available land must be suitable for the soil absorption drainage fields. Will soil percolation rates in the Delta region support an adequate septic system? Depending on the pending permits, alternative sewage treatment methods or a reduction in new facilities will need to be addressed.

A3-3

We noted a brief discussion on page 3C-23 regarding hazardous sites. It is stated that "the DW project islands contain several sites of potential soil contamination caused by historical agricultural operations or waste disposal." However a summary of specific waste site characterization data or related provisions to mitigate potential public health impacts was lacking in this section and in the public health section. It would be helpful to note the status of any hazardous wastes sites in the project area, any potential for public health impacts, and any planned mitigation measures to ensure the public's health and safety from any potential exposures.

A3-4

Thank you for the opportunity to review and comment on this draft document. Please ensure that we are included on your mailing list to receive a copy of the Final EIS, and future EIS's which may indicate potential public health impact and are developed under the National Environmental Policy Act (NEPA).

Sincerely yours,

Kenneth W. Holt, M.S.E.H.

Kenneth w. Holt

Special Programs Group (F29)

National Center for Environmental

Health

cc: Jim Sutton, State WRCB

#### **Department of Health and Human Services**

A3-1. The California Relocation Assistance and Real Property Acquisition Guidelines are designed to carry out the policies of the Uniform Relocation Assistance and Real Property Acquisition Act. One of the stated purposes of the guidelines is "to ensure that uniform, fair, and equitable treatment is afforded persons displaced from their homes, businesses or farms as a result of the actions of a public entity in order that such persons shall not suffer disproportionate injury" (Article 1, Section 6002). The guidelines require that an agency determine whether comparable replacement dwellings will be available before the displacement occurs.

Chapter 3I, "Land Use and Agriculture", identifies the displacement of residences and structures on the Delta Wetlands Project islands that would occur with project implementation and notes the availability of comparable housing in the area. At this time, Delta Wetlands owns all property that would be affected by the proposed project (Alternative 1 or 2). Acquisition of real property would not be needed to implement the proposed project. Chapter 3I identifies the need to relocate 20 residences and six farm worker barracks on Bacon Island and three trailers and one residence on Webb Tract. Comparable or higher quality housing opportunities are immediately available in the local area (Contra Costa and San Joaquin Counties) for those tenants who would need to relocate. The tenants on the Delta Wetlands Project islands are aware of the proposed project and have been kept informed throughout the NEPA/CEQA process (for example, see comment letters E5 and E6). Delta Wetlands would give tenants no less than 6 months after the project is approved to find new housing.

**A3-2.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".

See the Summary chapter in Volume 1 of this FEIS for a discussion of the preferred alternative. The USACE's record of decision also will discuss the preferred alternative as required by NEPA.

A3-3. Recreation facilities for the Delta Wetlands Project would not be built without proper septic system permits or any other permit deemed necessary by Contra Costa County or San Joaquin County. Currently, the existing septic systems serve farmsteads, rural residences, and other structures on the project islands as described in Chapter 3E, "Utilities and Highways"; these systems consist of individual septic tanks that each contain leach lines buried 34–36 inches underground (Huggins pers. comm.).

The governing counties have been contacted regarding the requirements for issuing permits for new facilities. Based on those discussions, more information has been added to Mitigation Measure E-7. Additionally, several marinas in both San Joaquin and Contra Costa Counties were contacted to determine how they dispose of sewage in the Delta area; use of septic tank systems was found to be a common method of sewage disposal. Whatever sewage treatment method is proposed at the recreation facilities, the project

proponent will need to coordinate with the county environmental health department, assess the suitability of that system for the site-specific soil conditions, and construct the new facilities only if permits are approved by the regulating county department. If, when specific design details are submitted, a regulating agency determines that the NEPA and CEQA documentation already completed for the project does not cover site-specific environmental impacts in enough detail, the agency may require additional environmental documentation before approving permits, entitlements, or alternative treatment methods.

The following information has been added to Mitigation Measure E-7:

In order to obtain a sewage permit in San Joaquin County, Delta Wetlands would be required to submit an application along with a work plan for the recreation facilities to the San Joaquin County Environmental Health Department. The work plan would then be reviewed by the Environmental Health Department to ensure compliance with all county requirements, and a permit would be issued or denied based on the findings of the review (Borgman pers. comm.).

Contra Costa County Environmental Health Division issues sewage permits in Contra Costa County. As with San Joaquin County, Delta Wetlands would be required to submit an application. In addition, Delta Wetlands would be required to submit three sets of plans for the recreation facilities along with a site map depicting existing structures and resources on the islands, and a safety plan. Issuance of the permit would be based upon compliance with all county requirements, review of the application, and site visit information obtained by the health inspector (Fung pers. comm.).

If, when specific design details are submitted to the appropriate regulating agencies, the agency determines that site-specific environmental impacts are not covered in enough detail by NEPA and CEQA documentation already completed for the DW project. Additional environmental documentation may be required prior to approval of permits, entitlements, or alternative treatment methods.

The following citations have been added to Chapter 3E:

Borgman, Carl. Supervising registered environmental health specialist. San Joaquin Environmental Health Department, Stockton, February 27, 1996—telephone conversation.

Fung, Eric. Health inspector. Contra Costa County Environmental Health Division, Martinez, CA. March 11, 1996—telephone conversation; March 12, 1996—information on sewage permit applications sent by mail.

The lead agencies have analyzed the effects of the Delta Wetlands Project. Through discussions with the appropriate counties, which are responsible agencies in the CEQA process, they have determined that no additional mitigation was found to be necessary if the existing permit requirements for the counties are met. With implementation of Mitigation Measure E-7, the impact of increase in demand for sewage disposal services from implementation of the Delta Wetlands Project would be reduced to a less-than-significant level. Approval of the Delta Wetlands Project would be conditioned on the construction of the recreation facilities, specifically on implementation of Mitigation Measure E-7; if Mitigation Measure E-7 were not implemented, the recreation facilities would not be built and the impact would not occur.

As described in Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities", construction of the recreation facilities has been removed from Delta Wetlands' CWA and Rivers and Harbors Act permit applications; therefore, USACE will not approve construction of such facilities when it issues its record of decision. See Master Response 5 for more information.

A3-4. Appendix C-6 of the 1995 DEIR/EIS presents a detailed analysis of the pesticide residues that may be present in the Delta Wetlands Project island soils. It was determined that the soils do not contain significant concentrations of agricultural chemicals and that past agricultural practices should not affect the quality of water stored on the Delta Wetlands Project islands. However, as discussed on page 3C-23 of the 1995 DEIR/EIS) page 3C=2.5 in FEIS Volume 1), because of the past agricultural activities on the Delta Wetlands Project islands, there is a potential that several sites of soil contamination from agricultural pesticides and other associated pollutants may exist. Although no known sites have been identified on the islands, the 1995 DEIR/EIS considered the potential contamination of water stored on the islands to be a concern warranting a "worst-case" approach; therefore, the 1995 DEIR/EIS concluded that the potential contamination of stored water by pollutant residues was a significant impact, and it indicated that implementation of Mitigation Measure C-8 would ensure that there are not sites on the Delta Wetlands Project islands that could contaminate stored water. Figure 3C-8 presents those sites considered to have the potential to contain contaminant soils on the Delta Wetlands Project islands.



UNITED STATES DEPARTMENT OF COMMERCE Office of the Under Secretary for Oceans and Atmosphere

Washington, D.C. 20230

November 27, 1995

State Water Resources Control Board Division of Water Rights Attention: Jim Sutton P.O. Box 2000 Sacramento, CA 95812-2000

Dear Mr. Sutton:

Enclosed are comments on the Draft Environmental Impact Statement for Delta Wetlands Project in Contra Costa and San Joaquin Counties, California. We hope our comments will assist you. Thank you for giving us an opportunity to review the document.

Sincerely,

Donna S. Wieting Acting Director

Ecology and Conservation Office

Enclosure



## NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)

#### COMMENTS ON

#### DRAFT ENVIRONMENTAL IMPACT STATEMENT

FOR

#### DELTA WETLANDS PROJECT IN CONTRA COSTA AND

SAN JOAQUIN COUNTIES, CALIFORNIA

#### General Comments

#### Project Description

The DW project description currently describes a wide range of project flexibility, including the use of the proposed reservoir islands to store banked or transferred water. However, the EIR/EIS does not adequately address the potential effects of these types of operations due to the uncertain participation of the State Water Project (SWP) and the Central Valley Project (CVP). In fact, the CVP and SWP are integral components of all DW operations, but they have not participated in the development of the project proposal or committed to the purchase of DW discharges. Uncertain operational scenarios such as transferring or banking water should not be included in the DW project description until more certainty and specific information is available.

The EIR/EIS describes the DW project as designed to operate within the objectives of the State Water Resources Control Board (SWRCB) 1995 Water Quality Control Plan (WQCP) which was developed for the SWP and CVP. However, project alternative 1 requires a modification to the total delta inflow formula, and project alternative 2 requires an exemption from the WQCP "percent inflow" export limit. The 1995 WQCP was developed to address the permits and licenses of the Bureau of Reclamation (Bureau) and the California Department of Water Resources (DWR) to appropriate water. Since the DW project falls outside the scope of the existing water right and the normal coordinated operation of the CVP and SWP, the SWRCB may choose to set additional or alternative terms and conditions upon diversions and discharges by the DW project.

#### Fisheries Impacts

The DW project proposes to include the discharges from their reservoir islands as a part of the inflow volume used to calculate the water available for export under the 1995 WQCP export/inflow ratios. Including the discharges from the DW project islands as a part of the inflow into the Delta is not appropriate because of the source of the water. The water discharged from the DW project reservoir islands would not have

A4-1

A4-2

**A4-3** 

the same biological benefits as the water flowing down the Sacramento or San Joaquin Rivers and into the Delta. Water flowing down these rivers may have temperature, transportation, and biological cue benefits to anadromous fishes that water originating from within the Delta would not. DW project water should be considered a second source or input of water into the Delta and be treated accordingly under terms and conditions set by the SWRCB.

A4-3 cont'd

#### Habitat Islands

The DW project proposal includes the use of two reservoir islands as "habitat islands" managed for the enhancement of terrestrial species habitat, including seasonal waterfowl habitat. DW proposes to maintain seasonal levels of shallow water on these islands and may choose to sell the discharged habitat island water for export. It is unclear if habitat island water diversions and discharges are designed to operate within the 1995 WQCP or any other operational criteria.

A4-4

#### Levee Maintenance

The draft EIR/EIS states that the levees on all four project islands will be maintained to protect the habitats or reservoir storage within. However, the impact analysis fails to assess the initial and cumulative effects of herbicide applications, and the increased or continued predator habitat created by the rock riprap levees. Juvenile salmonids have shown a comparatively low level of utilization of areas with rip-rapped banks due to limited in-water cover provided by the rock (CDFG 1982). Revegetation of these levees with riparian or other overhanging riverine vegetation could enhance the available fisheries habitat rather than continue to degrade it.

A4-5

#### Recreation Facilities

The proposed recreation facilities on the DW project islands could adversely modify or destroy existing shallow vegetated habitat that is essential to the resident and anadromous fishes of the Delta. Additionally, the docks and pilings may increase predator habitat and result in the loss of juvenile salmon. Increased boat traffic also has the potential to adversely affect sensitive species through oil or gas spills and increased turbidity from boat propellers or wakes. Appropriate mitigation must be developed which will address these impacts.

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#### Cumulative Impacts: Future Developments

The EIR/EIS does not provide an adequate analysis of cumulative fisheries impacts. Less than one year has passed since the December 1994 Bay-Delta framework agreement was reached in which new delta outflow and salinity standards were established in an effort to halt the decline of salmon, delta smelt, and other fish populations. When these standards were developed, models were used to predict typical outflow patterns that would occur during different water year types. It was believed that in addition to new higher minimum flow and salinity standards, modelled "excess" flows above the minimum standards would be a critical factor in allowing the recovery of fish populations.

It is unknown whether the protective standards contained in the Bay-Delta agreement will be sufficient to protect fisheries resources. The DW project would reduce so-called "excess" delta outflows and delta transport flows at various times of the year during different water years. If the existing "excess" flow regime is not adequate to protect fisheries resources, additional reductions in flow associated with the DW project will exacerbate the problem. Conversely, if the existing "excess" flow regime is adequate to protect fisheries resources, additional reductions in flow may render them inadequate.

To properly address the cumulative impacts of the DW project on fisheries resources, the EIS\EIR needs to provide analysis demonstrating that: 1) existing "excess flows" under the Bay-Delta agreement are more than adequate to allow the recovery of fisheries resources, and 2) "excess" flows remaining after cumulative flow reductions from the DW project, the Interim South Delta Project, and other planned delta water projects would still allow the recovery of fisheries.

#### Summary

The project description of the DW project included in this draft EIR/EIS requires clarification on several issues. Certain types of operations such as transferring or banking water are referred to vaguely and could have a wide range of impacts to aquatic resources. Also, the CVP and the SWP are key components of the project proposed by DW and yet the Bureau and DWR have not committed to buying or wheeling the water stored by the DW project. The EIS\EIR would benefit from further information regarding the use of DW discharges at the CVP and SWP facilities.

A4-7

A4-8

#### **National Oceanic and Atmospheric Administration**

- **A4-1.** See Master Response 1, "Project Objectives: Analyzing Effects of Water Transfers, Banking, and Augmenting Outflow", and Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program".
- **A4-2.** See response to Comment A2-2.
- A4-3. The commenter is correct in noting that Delta Wetlands discharges would not have the same biological benefits as water flowing down the Sacramento or San Joaquin River. As described in the 1995 DEIR/EIS and the 2000 REIR/EIS, Delta Wetlands Project operations would not affect compliance with the minimum-outflow objectives in the 1995 WQCP, and they would not affect inflow from the San Joaquin, Sacramento, or Mokelumne Rivers. Therefore, Delta Wetlands discharges are not assumed to replace existing Delta inflows.

It should be noted that the objectives for export limits included in the 1995 WQCP are intended specifically "to protect the habitat of estuarine-dependent species by reducing the entrainment of various life stages by the major export pumps in the southern Delta". The terms of the Delta Wetlands FOC, developed as a part of the California and federal ESA consultation process, consist of detailed criteria that govern operations of the proposed project to eliminate project impacts on listed fish species and their habitats; these criteria mitigate potential project effects on entrainment at the SWP/CVP pumps. The FOC terms primarily specify the allowable timing and magnitude of project diversions for storage and discharges for export or outflow. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for more information.

The FOC terms and biological opinion RPMs apply to the proposed project regardless of how in-Delta storage operations are accounted for under the 1995 WQCP export limit; incorporating these measures into the proposed project reduces the effects of project operations on fish species and their habitats to a less-than-significant level (see Chapter 3F).

- **A4-4.** See response to Comment A2-11.
- **A4-5.** Levee improvements and maintenance are described in Chapter 3D. Delta Wetlands' levee design for the reservoir islands includes the use of riprap on the interior levee slopes only, as described in Chapter 3D under "Erosion Protection in Levee Design"; the use of riprap is not included in planned improvements to the habitat island levees, which are also described in this section. Maintenance of the exterior (i.e., channel-side) levee slopes, including placement of riprap, under Delta Wetlands Project operations would be the same as under current practices. Project operations therefore would not increase the potential for cumulative effects of herbicide applications or for predation associated with riprap. See

also "Alteration of Habitat" in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

**A4-6.** The NMFS, USFWS, and DFG biological opinions fully address the potential effects of project implementation on fish species, including the effects of constructing and operating proposed recreation facilities. See "Alteration of Habitat" in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for a listing of the measures required by the biological opinions to reduce or compensate for changes in habitat that may result from the construction of recreation facilities and other project features (e.g., intake and discharge locations).

See response to Comment B7-64 regarding predation at recreation facilities.

In addition, a new mitigation measure is proposed to reduce the number of boat slips that Delta Wetlands may construct; implementation of this measure reduces the potential impacts resulting from recreation use associated with the proposed project. This measure is described under "Additional Mitigation of Potential Impacts: Reduction in Boat Slips at Recreation Facilities" in Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities". As described in Master Response 5, Delta Wetlands has removed construction of the recreation facilities from its CWA permit application, and USACE will not approve construction of such facilities when it issues its record of decision.

A4-7. The commenter requests that the lead agencies perform an analysis to determine whether the excess flows under the Bay-Delta framework agreement are more than adequate to allow the recovery of fishery resources. The commenter further requests that the lead agencies analyze whether recovery of fishes would still be possible with the amount of excess flows remaining after the reductions resulting from operation of the Delta Wetlands Project in conjunction with other planned Delta water projects. It is not within the scope of NEPA and CEQA analysis to address whether USFWS and NMFS and other federal and state agencies set the 1995 WQCP at a level that would protect the recovery of fishery resources only with an undetermined amount of "excess flows".

The impact analyses of the 1995 DEIR/EIS concluded that the project could result in several significant effects on water quality and fisheries; mitigation measures were recommended to reduce impacts to a less-than-significant level.

See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for a description of the operating measures developed through ESA consultation that are designed to reduce project effects on outflow and salinity for the protection of fishery resources.

**A4-8.** See Master Response 1, "Project Objectives: Analyzing Effects of Water Transfers, Banking, and Augmenting Outflow", and Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program".



# United States Department of the Interior

#### OFFICE OF THE SECRETARY

Office of Environmental Policy and Compliance 600 Harrison Street, Suite 515 San Francisco, California 94107-1376

December 14, 1995

Colonel John N. Reese, District Engineer U.S. Army Corps of Engineers, Sacramento District Regulatory Functions Branch (Attn: Jim Monroe) 1325 J Street, Twelfth Floor Sacramento, California 95814-2922

RE: ER 95/0693

Dear Colonel Reese:

The U.S. Department of the Interior (DOI) has reviewed the Draft Environmental Impact Statement/Report (DEIS/R) for proposed Delta Wetlands Project (Project), Delta Wetlands Properties (Bacon and Bouldin Islands and Webb and Holland Tracts), Sacramento-San Joaquin River Delta, Contra Costa and San Joaquin Counties, California.

The following comments are provided for your use and information when preparing the Final Environmental Impact Statement/Report (FEIS/R).

GENERAL COMMENTS

#### Fish and Wildlife Resources

The Department understands this Project would divert and store water on two islands (Webb Tract and Bacon Island). Two additional Islands, Bouldin and Holland Tract, would be managed for wetland, fish, and wildlife values to offset habitat losses resulting from the Project. These two reservoir islands encompass approximately 11,000 acres of primarily agricultural land. The mitigation islands encompass approximately 9,000 acres of agricultural land.

Proposed Project alternatives 1, 2, and 3 all would have significant adverse impacts on wildlife and fisheries, and as such, would contribute to significant cumulative impacts on the Delta's aquatic resources.

Proposed mitigation would not compensate for loss of wildlife and habitat values. Wetlands and other wildlife habitat would be adversely affected; Delta habitats directly and indirectly

A5-1

impacted. These would include potential adverse effects on habitat at the Delta's X2 location.

The Fish and Wildlife Service (Service) has repeatedly indicated to Delta Properties that this project would have significant impacts on various Delta fish species, wetlands, and terrestrial wildlife species. Since the Service is currently reviewing U.S. Army Corps of Engineers' biological assessment (Impacts of the Delta Wetlands Project on Fish Species, June 21, 1995) and preparing a biological opinion pursuant to the Endangered Species Act of 1973, as amended (ESA), our comments are restricted to project impacts on general wildlife habitat values and non-ESA listed species.

The Service initially provided comments on the proposed project during the public notice review period (February 29, 1988). At that time, the Corps was advised of the Service's Mitigation Policy regarding project-affected wetland, aquatic, and upland habitats and of other factors that would need to be addressed in an EIS/R.

The Service further indicated it would recommend against the Corps' issuance of permits pursuant to section 404 of the Clean Water Act and section 10 of the Rivers and Harbors Act. The Service also identified the project as potentially impacting ESA listed and proposed species (April 27, 1990).

Consequently, the Service commented against implementation of the project because it would impact a variety of fish and wildlife species, including the threatened delta smelt, then a candidate species for listing under the ESA.

On April 25, 1991, the Service provided recommendations to the Corps and project applicant in comments on a draft environmental document. The Service recommended against the issuance of any permit for this proposed project.

In a subsequent letter dated February 2, 1993, the Corps was advised that pursuant to Part I, paragraph 9, and part IV, paragraph 3(b) of the revised section 404(q) Memorandum of Agreement between the Department of the Army and the Department of the Interior, the proposed Delta Project (PN No. 9804) will have a substantial and unacceptable impact on aquatic resources of national importance.

In a July 31, 1995 letter (file reference 1-1-95-I-1222) commenting on the biological assessment of project impacts on delta smelt, delta smelt critical habitat, and Sacramento splittail (proposed for ESA listing as threatened), the Service provided comments on a variety of issues including the following general issues:

A5-1 cont'd

- (1) The net effect of the project is unclear. The biological assessment discusses beneficial effects and adverse effects but does not attempt to combine these effects to obtain the net project effect;
- (2) The cumulative effects of the Delta Wetlands project with other future non-federal projects are not discussed in the biological assessment. Non-federal projects such as future agricultural and urban diversions within the Delta, dredging, and other sources of contaminants may combine with the components of the Project to affect the environmental baseline;

A5-1 cont'd

- (3) The Project would not be able to divert any required flows provided to transport fish through the Delta to Suisun Bay. An example of such a transport flow would be the flows resulting from the lack of diversions by Los Vaqueros Reservoir; and
- (4) The 1995 sampling of delta smelt indicates very low population. Thus, the analysis of project effects on delta smelt must be accurate.

#### Water and Power Resources

Maintenance of the levee should include a program to control wood vegetation whose root system could cause leakage of the levee. Muskrat burrows can also be a problem for levee systems, and they may need to be controlled if muskrats invade the wetlands.

A5-2

Rapid flushing of the wetland system by raising and lowering water levels could remove valuable nutrients from the system. also could affect aquatic invertebrate populations which are valuable food items for nesting waterbirds and their broods.

A 5-3

#### SPECIFIC COMMENTS

Chapter 3F. Affected Environment and Environmental Consequences -

#### Fishery Resources

Previous sections of the document (see Chapter 2 EIS/R, Project Description and Purpose and Need) used phrases such as the "Delta Wetlands Project could choose" or "most likely...water diversions... would begin", or "water released...may be sold or used". Statements such as these make it difficult to analyze project effects on fishery resources because of the uncertainty with how the project will normally operate in any given year. Diversions and discharges of stored water could occur during any month only subject to export limits specified in the 1995 Water Quality Control Plan.

A5-4

Discharges of water from the reservoir islands with elevated temperatures (see Chapter 3C, EIS/R) could have a significant effect on juvenile chinook salmon. San Joaquin River and Mokelumne River salmon runs would be especially vulnerable to elevated temperatures, particularly if the Delta Wetlands Project were to release water with elevated temperatures to the State Water Project (SWP) prior to the end of July in any given year. While this impact is noted in the EIS/R, when combined with the Delta Wetlands Project's uncertain project description, the Service considers the potential impacts to chinook salmon juveniles as significant.

A5-5

The effects of the Delta Wetlands Project on the federally listed as candidate longfin smelt generally seem to be understated. All of the alternatives and mitigation presented would result in an increase in adult and juvenile mortality above the current baseline condition. Specific mitigation should be developed which would provide direct benefit to the longfin smelt and improve the Delta baseline condition for the species.

A5-6

The Service disagrees that effects of construction activities and alteration of aquatic habitat would be less than significant. The continued placement of rip-rap along levees within the Delta has resulted in significant losses of shallow vegetated aquatic habitat. There is no current program, including the SB-34 program, which has been able to create or restore significant amounts of near-shore shallow water habitat. In general, restoration efforts have resulted in development of riparian habitat interior to the levees, or a narrow strip of riparian habitat located between the levee and the existing aquatic habitat.

A5-7

Development of the Delta wetland project may preclude restoration of habitat within the western Delta. Benefits accrued within the western Delta as habitat is restored and occupied by native fishes, is likely to be negated as any increased production would be subject to operations and impacts associated with the Delta Wetlands Project.

Chapter 3H. Affected Environment and Environmental Consequences - Wildlife

In general the Service agrees with the assessment of impacts and proposed mitigation measures to offset habitat losses associated with the deep flooding of Webb Tract and Bacon Island. The Service does have concerns that many of the benefits to waterfowl and cranes will be negated by the increase in recreational activities, including hunting and hunting related disturbance.

A5-8

Projected use for the islands indicates the project could result in a 21 percent increase in hunter-days available within the Delta. This impact has been characterized as less than significant (page 3H-27) and as beneficial (page 3J-14). increase in hunter use on the two habitat/mitigation islands will have a significant effect on how the islands will be utilized by waterfowl and shorebirds.

A5-8

The Service recommends that until substantial benefits to waterfowl and shorebirds can be documented, current hunting levels be maintained. The Service considers the proposed hunting impacts as significant, reducing substantially the overall function and values accrued by the proposed mitigation.

cont'd

Closed hunting zones on both Bouldin Island and Holland Tract are largely surrounded by either free-roam or spaced-blind hunting zones. In most cases birds leaving closed zones must fly over hunted areas. Closed areas should be configured such that only one side of the closed area borders a open hunting area.

A5-9

Implementation of proposed recreational development associated with the Delta Wetlands Project could result in an additional 1-2 percent boater use (800 registered boats) within the western Delta (page 3J-13). Increased wake and wave action associated with boating activities will contribute to significant existing levee erosion, loss of near-shore habitat, and result in additional needs for rip-rap. To mitigate for this impact Delta Wetlands project should create additional near-shore and shallow water habitat through the use of set- back levees.

A5-10

Development of trap and skeet ranges as a result of the proposed Delta Wetlands Project does not appear to have been analyzed. The EIS/R mentions that trap and skeet ranges would be available for use, but does not analyze their projected use or placement.

Table 19 of the Habitat Management Plan states that: Skeet ranges shall be restricted to recreational facilities (Figures  $\overline{2}$  and 3). Ranges shall be configured to avoid deposition of lead shot into wetland habitats." This implies that there may be as many as 16 ranges constructed on the 2 habitat islands.

A5-11

The EIS/R should clearly identify the number and location of these facilities. Furthermore, due to the potential of large numbers of waterfowl and shorebirds utilizing the mitigation islands, only steel shot should be utilized on these ranges. use of steel shot reduces the potential of lead shot ingestion and poisoning by birds utilizing the islands and reduces future hazardous materials cleanup costs associated with closing shooting ranges.

A5-12

The Delta Wetlands Project should consider an alternative to the proposed habitat cropping patterns proposed in the Habitat The existing proposal would reduce subsidence Management Plan.

on the islands but would not stop the process. An alternative of wet soil management should be evaluated.

All peat soil units should remain wet or shallowly flooded for 9 to 10 months of the year, with water removed between June and August of each year. Only mineral soils should be actively farmed and cropped. While this would result in reduced forage values for waterfowl, overall increases in habitat value would be realized as native habitats re-establish on the Delta Wetlands Project islands.

A5-12 cont'd

#### SUMMARY COMMENTS

The proposed Delta Wetlands Project alternatives 1, 2, and 3 all would have significant adverse impacts on wildlife and fisheries. The proposed mitigation does not compensate for the loss of wildlife and habitat values, and the Project will contribute to significant cumulative impacts to aquatic resources of the Delta.

Because the proposed project would have significant adverse impacts on wildlife and habitat values, the Service continues to recommend against permit issuance and certification of the draft EIS/R.

Thank you for the opportunity to comment.

Sincerely,

Patricia Sanderson Port

Regional Environmental Officer

cc: Director, OEPC, w/original incoming

Regional Director, FWS, Region I, Portland

Regional Director, BR, Sacramento

#### **U.S. Department of the Interior**

**A5-1.** This comment lists several letters that USFWS submitted to USACE between February 1988 and February 1993 regarding the proposed Delta Wetlands Project. Delta Wetlands revised the project proposal based on the input that USFWS and other commenters provided on the earlier proposal, then submitted new water right applications to the SWRCB in July 1993.

The comment also refers to a July 1995 letter from USFWS to USACE on the biological assessment addressing Delta Wetlands Project effects on fish species (Appendix F2 of the 1995 DEIR/EIS). Through the formal ESA consultation process, both NMFS and USFWS determined that the biological assessment was adequate for compliance with Section 7 of the federal ESA. Since this letter was submitted, USACE and USFWS have concluded formal consultation on project effects on listed fish species, and USFWS has issued no-jeopardy biological opinions regarding project effects on delta smelt and splittail. The opinions also address project effects on habitat for these species, including changes in X2 during Delta Wetlands diversions, and cumulative effects of the Delta Wetlands Project when considered in the context of other projects. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

Chapter 3H concludes that the Delta Wetlands Project would have several significant effects on wildlife (temporary construction impacts on state-listed species, disturbance to greater sandhill cranes and wintering waterfowl from aircraft operations, and potential for increased incidence of waterfowl diseases). The analysis in Chapter 3H concludes that implementation of the HMP (developed with DFG and in consultation with USFWS) on the habitat islands would fully compensate for the loss of wildlife and terrestrial habitat values on the reservoir islands. See responses to Comments A5-8 through A5-12 for discussions of specific issues raised by the commenter on the impact assessment for terrestrial wildlife and habitat.

- A5-2. As described on pages 3D-11 and 3D-12 of the 1995 DEIR/EIS (page 3D-13 in FEIS Volume 1), postconstruction monitoring and maintenance of the levees would include a weekly inspection of the levees and removal of tall grasses, brush, and/or trees, as needed, to allow for visual levee inspection and reduce the risk of levee damage or leakage. Problems associated with muskrat burrows would be detected during weekly inspections, and Delta Wetlands would implement corrective actions. Results of the weekly inspections and resulting actions would be included in Delta Wetlands' quarterly report to the local reclamation districts and DWR.
- **A5-3.** Only the habitat islands would be managed to provide wetlands. "Rapid flushing" is not proposed as a management strategy for wetlands on the habitat islands. Water circulation on the habitat islands and its potential effects on wildlife, including waterfowl, were considered during development of the HMP. The HMP design team developed prescriptions for water management in the HMP in consideration of water needs for vegetation management; seasonal waterfowl habitat requirements, including maintenance

of aquatic invertebrates as a food source; and the need for water circulation to reduce the risk of waterfowl disease outbreaks and to improve water quality.

- **A5-4.** See response to Comment A2-1.
- A5-5. The potential temperature-related effects of project operations on winter-run chinook salmon are addressed by the FOC, which have been incorporated into the proposed project. See "Increase in Temperature-Related Mortality of Juvenile Chinook Salmon" in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".
- **A5-6.** Longfin smelt is no longer a candidate species for listing, as of February 28, 1996 (61 FR 40: 7457–7463).

Potential impacts of Delta Wetlands Project operations on longfin smelt were evaluated and identified in the biological assessment and in Chapter 3F of the 1995 DEIR/EIS. Any potential effects of project operations on longfin smelt are reduced by the operating terms detailed in the FOC, which were developed for the protection of listed species (e.g., delta smelt). See "Indirect Effects of Delta Wetlands Project Diversions and Discharges on Flows, Downstream Transport, Area of Optimal Salinity Habitat, and Entrainment" in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

- **A5-7.** The potential effects of project construction and operations on habitat are addressed by the USFWS, NMFS, and DFG biological opinions on the project. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".
- A5-8. The methods used to determine the types and area of habitat mitigation necessary to offset project impacts on wildlife are generally described in Chapter 3H of the 1995 DEIR/EIS on pages 3H-11 and 3H-12 (FEIS Volume 1 pages 3H-12 and 3H-13), and are described in detail in Appendix G3, "Habitat Management Plan for the Delta Wetlands Habitat Islands". The HMP design team (which consisted of representatives from the SWRCB and DFG and the lead agencies' consultant biologists, in consultation with USACE and USFWS) reviewed hunter densities associated with private duck hunting clubs and state and federal waterfowl refuges. Information on hunter use levels sustained on state and federal waterfowl refuges in the Central Valley was used to establish permissible hunter densities on the Delta Wetlands habitat islands. The HMP design team also assigned lower mitigation habitat values to portions of the habitat islands that would be hunted and required establishment of three closed hunting zones to provide onsite refuge for waterfowl, greater sandhill cranes, and other species during hunting periods (see 1995 DEIR/EIS pages 3H-19 and 3H-20 [FEIS pages 3H-21 and 3H-22]. Consequently, the HMP requires that Delta Wetlands provide more acres of waterfowl habitat for mitigation than would be required if hunting were not permitted on the habitat islands or was permitted to occur at the existing, very low levels of hunter use.

In addition to placing restrictions on hunter use levels, the HMP restricts hunter access and mobility and requires that hunter activity be monitored to ensure compliance with the hunting restrictions on the habitat islands (see pages 20–21 and Table 19 of Appendix G3). Mitigation monitoring is also required to determine whether mitigation habitats are providing the wildlife values intended by the HMP and provides for future changes in habitat island management, including potential reductions or increases in hunting levels, to increase mitigation habitat values if indicated through monitoring results (see pages 21–22 and Table 26 of Appendix G3).

A5-9. See response to Comment A5-8. When determining the placement and boundaries of the hunting zones, the HMP design team considered how human disturbance could affect wildlife in closed hunting zones and the compatibility of the layout with mitigation design objectives. Configuring the closed zones such that only one side of the closed area borders an open hunting area would reduce the habitat value of the closed zones for wildlife species. As described in response to Comment A5-8, the closed zones were designed in size, location, and juxtaposition to other habitat types to provide suitable refuge and high habitat values for wildlife species. The closed zones were configured by the HMP team for their site-specific characteristics (e.g., including the Bouldin Island lakes in closed zones to provide waterfowl resting areas) and for their interaction with neighboring habitats. Criteria used to design the habitat island habitats are described on pages 7–8 of Appendix G3.

The 1995 DEIR/EIS identifies as less-than-significant impacts the potential disruption of waterfowl use and increase in waterfowl harvest as a result of increased hunting on the Delta Wetlands Project islands (see Impacts H-18, H-19, and H-20). As described on page 3H-27 of the 1995 DEIR/EIS (FEIS page 3H-29), the HMP hunting program is designed to reduce hunter encroachment to levels that would not substantially disturb waterfowl over the long term.

- **A5-10.** As part of the FOC terms and the DFG RPMs, Delta Wetlands is required to contribute to an aquatic habitat restoration fund, which will be used to purchase and manage habitat to mitigate effects of increased boat use. As manager of the funds, DFG will determine the best methods for establishing and maintaining shallow habitat, including the use of set-back levees. See also Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".
- **A5-11.** As indicated in the HMP (Figures 4 and 5), Delta Wetlands may construct up to 16 recreation facilities on the perimeters of the habitat islands at the locations shown; however, Delta Wetlands has removed construction of these facilities from its CWA and Rivers and Harbors Act permit applications. See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".

The HMP restricts trap/skeet ranges to the footprint of recreation facilities that may be developed in future years (see Table 19, page 1). A recreation facility would consist mainly of a parking lot, living quarters, and boat berths, as described in Appendix 2 of the

1995 DEIR/EIS. Land within the footprint of recreation facilities is not expected to be used by waterfowl. Areas intended for waterfowl use are outside the footprint of the recreation facilities, and as referenced by the commenter, the trap/skeet ranges would be configured to avoid deposition of lead shot into habitats used by waterfowl. Consequently, the potential for birds to ingest lead shot is low. Additionally, the HMP team considered restricting trap and skeet ranges to steel shot use only and concluded that this would not be practical; steel shot in sizes used for trap/skeet ranges is generally unavailable and costly.

Any hazardous materials cleanup costs associated with closing shooting ranges would be borne by the recreation facility owners. It should be noted that the design and use of the recreation facilities are subject to final approval by the counties.

**A5-12.** Delta Wetlands Project compensation goals and objectives for the habitat islands are detailed in the HMP (Appendix G3) on pages 2–7. One of the HMP management objectives is to reduce the rate of island subsidence through reduction in tilled acreage and restrictions on crop types adjacent to perimeter levees. Subsidence is a natural process that results primarily from conversion of peat soils into gas and is accelerated by tillage and other agricultural activities. Habitat management would slow the rate of subsidence on Bouldin Island and Holland Tract relative to subsidence rates under existing agricultural use (see Impact D-6 in Chapter 3D, "Flood Control"). Management of the islands to further reduce subsidence would require development of habitat types with wildlife values insufficient to achieve other compensation objectives. As described under "Management Monitoring Programs and Performance Standards" in the HMP (pages 21–22), changes in habitat types and management, including conversion of managed croplands to wetlands, are permissible in future years if monitoring indicates that these changes would meet the goals of the HMP.



### UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

#### **REGION IX**

## 75 Hawthorne Street San Francisco, CA 94105-3901

DEC 2 1 1995

Colonel John N. Reese District Engineer Corps of Engineers, Sacramento District 1325 J Street Sacramento, CA 95814-2922

Attention:

Jim Monroe

Subject:

Public Notice (PN) 190109804, Draft EIR/EIS Delta Wetlands Project, CA

### Dear Colonel Reese:

The Environmental Protection Agency (EPA) has reviewed the Public Notice (PN) 190109804, dated September 22, 1995, regarding a proposal for four Delta islands in Contra Costa and San Joaquin Counties. These comments have been prepared under the authority of and in accordance with the provisions of the Federal Guidelines (40 CFR 230) promulgated under section 404(b)(1) of the Clean Water Act.

## Site & Project Description

The project proponent's preferred project would provide for direct diversion and diversion to storage of unregulated surplus Delta water flow onto four Delta islands: Bacon Island and Bouldin Island in San Joaquin County, and Holland Tract and Webb Tract in Contra Costa County. Bacon Island and Webb Tract would be used for storage of water for later sale or release for Delta export or to meet Bay-Delta Estuary water quality or flow requirements. Water would be diverted onto these islands, subject to regulatory constraints, during times of demand throughout the year. Bouldin Island and Holland Tract would be used primarily for management of wetlands and wildlife habitat. Water would be seasonally diverted onto these islands, with subsequent water discharge, pursuant to the requirements for management of the wetland and wildlife habitat; this discharged water may also be used for later sale or release for Delta export or to meet Bay-Delta Estuary water quality or flow requirements. The applicant's water storage operations would involve inundation of jurisdictional waters of the United States, including wetlands, on the reservoir islands.

This project would also include construction of recreation facilities along the perimeter levees on all four islands, operation of a private airstrip on Bouldin Island, and, during periods of non-storage, management of shallow water within an inner levee system on Bacon Island and Webb Tract.

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### Recommendations

EPA believes that the underlying benefit of this project is an increased amount of water available for numerous beneficial uses, for the citizens and environment in California. We appreciate the efforts of the applicant to construct this unique project in a way that minimizes most wetland impacts. Although we are supportive of the project and believe the 404 (b)(1) Alternatives Analysis submitted is adequate, we have the several concerns and recommend that the Corps resolve these concerns with the applicant prior to permit authorization.

A6-1

EPA shares the concerns expressed by the National Marine Fisheries Service (NMFS) and the Fish and Wildlife Service (FWS) on the potential to affect winter-run chinook salmon and its associated habitat, through construction activities (both long and short-term) and water transfer. Therefore, EPA strongly recommends that any special conditions proposed by NMFS or FWS be incorporated into the permit.

A6-2

We are also concerned about the erosional impacts that may be caused by the construction and operation of the planned marinas. Care should be taken to fully minimize the possible impacts to wetlands and associated habitats caused by construction activities and boat wake. The planned facilities include as many as 30 boat berths per facility in adjacent channels and 36 boat berths per facility on the island interiors. We question the need for this density of facilities on such sensitive habitat and strongly recommend that these facilities be scaled back to a lower density.

A6-3

We appreciate the opportunity to comment on this public notice and look forward to resolving our concerns with the proposed project. If you have any questions about these comments, please contact Tony Lewis of my staff at 415/744-1973.

Sincerely,

Jeff Rosenbloom, Chief

Wetlands & Sediment Management Section

cc:

Applicant
USFWS, Sacramento
CDFG, Sacramento
SWRCB, Balaguer, Sacramento
NMFS, Mobley, Long Beach

## U.S. Environmental Protection Agency, Region IX (Wetlands and Sediment Management)

- **A6-1.** USACE acknowledges the commenter's evaluation of the project and the 404(b)(1) Alternatives Analysis presented in Appendix 4 of the 1995 DEIR/EIS. See responses to Comments A6-2 and A6-3 for responses about specific concerns expressed in this letter.
- **A6-2.** See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for a discussion of the measures incorporated into the project description to protect winter-run chinook salmon and other aquatic species. Delta Wetlands will be required to implement the terms of the biological opinions as part of its operating conditions.
- **A6-3.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION IX

75 Hawthorne Street San Francisco, CA 94105

January 18, 1996

Colonel John N. Reese
District Engineer
Corps of Engineers, Sacramento District
1325 J Street
Sacramento, CA 95814-2922
Attention: Jim Monroe

Dear Colonel Reese:

The Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) for the **Delta Wetlands Project**, Contra Costa and San Joaquin Counties. Our review is provided pursuant to the National Environmental Policy Act (NEPA) [42 USC 4231 et seq.], Council on Environmental Quality (CEQ) regulations [40 CFR Parts 1500-1508] and Section 309 of the Clean Air Act.

The Delta Wetlands Project proposes to divert approximately 312,000 acre feet of Delta winter outflow for diversion to storage onto four Delta islands: Bacon Island and Bouldin Island in San Joaquin County, and Holland Tract and Webb Tract in Contra Costa County. Bacon Island and Webb Tract would be used for storage of water for later sale or release for Delta export or to meet Bay-Delta Estuary water quality or flow requirements. Water would be diverted onto these islands, subject to regulatory constraints, during times of demand throughout the year. Bouldin Island and Holland Tract would be used primarily for management of wetlands and wildlife habitat. This project would also include construction of recreation facilities along the perimeter levees on all four islands, operation of a private airstrip on Bouldin Island, and, during periods of non-storage, management of shallow water within an inner levee system on Bacon Island and Webb Tract. The applicants are seeking appropriative water rights from the State Water Resources Control Board and a Clean Water Act Section 404 permit from the Corps of Engineers (COE). This comment letter is to arrive by January 18, 1996, as agreed upon, due to the government shutdown in December, 1995.

Based on our review, we have assigned the DEIS a rating of EC-2 (Environmental Concerns-Insufficient Information). This EC-2 Rating is further defined in the attached "Summary of the EPA Rating System." EPA commends the COE for addressing many of the concerns that EPA and other resource agencies expressed regarding the need for disclosure of additional information regarding the project. We also commend the COE for the clarity and thoroughness of the analysis in the DEIS. Also, we support the Delta Wetlands project proposal to establish a "Delta Wetlands Environmental Research Fund," supported by export water sales (DEIS, p. 2-9).

A7-1

We have assigned the EC-2 rating because of potential for movement of optimum salinity conditions upstream. While this may be done while "not violating water quality objectives," it does represent a possible significant adverse impact (as an indicator of reduction of optimum environment for key components of the Bay Delta ecosystem). EPA is also concerned that diversions onto the islands may significantly attenuate pulse flows associated with spring storms. The Final Environmental Impact Statement (FEIS) should include more specific information regarding project impacts to optimum salinity conditions and to spring pulse flows. Finally, as described in the DEIS, Delta Wetlands operations are not integrated with operation of the State Water Project and Central Valley Project. In general, EPA recommends that the FEIS include discussion regarding the relationship of the project to other Bay/Delta diverters, notably, the State Water Project and Central Valley Project: Potential environmental benefits and adverse impacts of project operations could change substantially if the operation of the projects were integrated.

A7-1 cont'd

We appreciate the opportunity to review and provide comments on the DEIS. Please send two copies of the FEIS to this office at the same time it is officially filed with our Washington, D.C. office. If you have any questions, please feel free to contact me at (415) 744-1584, or have your staff contact Carolyn Yale regarding aquatic resource issues at 744-1580, or Edward Yates regarding NEPA issues at (415) 744-1571.

Sincerely,

David Farrel, Chief

Office of Federal Activities

enclosures (2)
MI# 001001. DELTWET.DEI

cc: USFWS, Sacramento
CDFG, Sacramento
SWRCB, Balaguer, Sacramento
NMFS, Mobley, Long Beach

### SUMMARY OF RATING DEFINITIONS AND FOLLOW-UP ACTION

### Environmental Impact of the Action

#### LO-Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

### EC-Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

### **EO-Environmental Objections**

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

### EU-Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of environmental quality, public health or welfare. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommend for referral to the Council on Environmental Quality (CEQ).

## Adequacy of the Impact Statement

### Category 1-Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

### Category 2-Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

#### Category 3-Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

\*From: EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

## **AQUATIC RESOURCES**

1. EPA believes that the appropriate reference conditions for evaluating impacts of the Delta Wetlands (DW) project are the "baseline" conditions represented by operation of existing water project facilities in accordance with the 1995 Bay/Delta Water Quality Control Plan (WQCP). It is important to emphasize that operating the project to meet the WQCP does not imply "no adverse impacts" to aquatic resources [DEIS, pp. A-1 to A-8]. The project should be designed and operated to ensure minimal adverse impacts to aquatic resources protected under the WQCP; impacts which cannot be avoided should be offset by measures consistent with overall objectives for Bay/Delta ecosystem restoration. The Final EIS should provide more specificity regarding mitigation measures which would accomplish this.

A7-2

2. The DEIS discloses that operations of the DW project would move "x2" (the 2ppt isohaline) deeper into the Delta (3F-17). This is evaluated as an "minor" or "insignificant" impact which would not adversely affect fish habitat or violate water quality standards (WQCP) [DEIS, p. A-23, 3F-26]. We cannot concur that this degradation of salinity conditions during certain periods of the year is insignificant. The Final EIS should discuss ways in which the project can be modified to minimize this effect.

A7-3

EPA questions the use of changes in the *surface area* of "optimal salinity conditions," rather than location of x2 per se, as the indicator of impacts on fish and invertebrate abundance. The location of x2 (2ppt bottom salinity) is closely associated with relative abundance of estuarine organisms, and with organic matter entering the food web. The Final EIS needs to provide additional scientific justification for use of surface area of optimal salinity conditions as an indicator of estuarine conditions.

would have "less than significant impacts." (Page 3F-26 states that Delta outflow could be reduced by as much as 9,000 cfs during initial days of filling.) We are concerned that large diversions during sensitive periods—for instance, diversion of first storm pulses during the winter and spring—could have significant impacts on any of the species which have eggs, larvae or juveniles present in the Delta.

Also, we question the conclusion that diverting large amounts of water for short periods

Finally, the DEIS has not provided impact information on components of the Bay/Delta ecosystem closely associated with x2 and outflow, such as supply of particulate organic carbon, abundance of Neomysis, and starry flounder. This information should be included in the Final EIS.

3. Alternative 2 differs from Alternative 1 by not constraining DW island discharges and water export according to the export limits set in the WQCP. Not adhering to the prescribed pumping limits is counter to a strict interpretation of WQCP requirements and, more importantly, would result in more adverse salinity conditions in the South Delta. As we have explained above, EPA will not accept as a baseline or "floor" anything other than the current facilities and operations agreements in place. New projects must (to the fullest extent possible) avoid adverse impacts relative to these baseline conditions.

A7-4

- 4. The DEIS suggests that water from the Delta Wetlands islands could contribute to outflow and, if coordinated with or integrated into upstream reservoir operations, could substitute for upstream flow releases to meet Bay/Delta outflow requirements [p. 3B-21, 3F-12]. The benefits of using Delta Wetlands water for outflow, particularly if it substitutes for rather than augments upstream releases, need to be documented more thoroughly in the EIS. The Delta Wetlands DEIS notes that instream flows would not be allowed to fall below required levels. However, in many instances, currently required flows are well below the levels needed for fisheries restoration. Substitution of Delta Wetlands water for reservoir releases should support implementation of the Anadromous Fish Restoration Plan.
- 5. EPA is concerned that DW could be operated to divert water during spring periods when delta smelt larvae, juveniles, or adults are present (DEIS, 3F-25). The FEIS should include more specific information regarding the time period, hydrologic conditions, and resources of concern associated with spring diversions and the delta smelt.

### WETLANDS

- 1. EPA appreciates the efforts of the applicant to construct this project in a way that minimizes most wetland impacts. EPA has commented on the Clean Water Act Section 404 permit application in a letter to you from Jeff Rosenbloom. A summary of the concerns identified in that letter follow. EPA shares the concerns expressed by the National Marine Fisheries Service (NMFS) and the Fish and Wildlife Service (FWS) on the potential to affect winter-run chinook salmon and its associated habitat, through construction activities (both long and short-term) and water transfer. Therefore, EPA strongly recommends that any special conditions proposed by NMFS or FWS be incorporated into the permit.
- 2. We are also concerned about the erosional impacts that may be caused by the construction and operation of the planned marinas. Care should be taken to fully minimize the possible impacts to wetlands and associated habitats caused by construction activities and boat wake. The planned facilities include as many as 30 boat berths per facility in adjacent channels and 36 boat berths per facility on the island interiors. We question the need for this density of facilities on such sensitive habitat and strongly recommend that these facilities be scaled back to a lower density.

## ENDANGERED SPECIES ACT COMPLIANCE

1. EPA recommends that the FEIS include more information regarding aquatic habitat loss and impacts on Bay/Delta fish species as requested by the U.S. Department of Interior letter commenting on the DEIS (Letter to you from Patricia Port, Regional Environmental Officer, December 14, 1995). The FEIS should include the biological opinions concluding consultations on the delta smelt and winter-run chinook. Also, project changes required through the Endangered Species Act should be identified.

A7-5

A7-6

A7-7

A7-8

## U.S. Environmental Protection Agency, Region IX (Office of Federal Activities)

- A7-1. The lead agencies have noted EPA's "Environmental Concerns—Insufficient Information" rating of the 1995 DEIR/EIS. The 2000 REIR/EIS contains additional information that addresses this comment. The FOC, which have been incorporated into the project, limit the timing and magnitude of project diversions based on the value of X2, an indicator of optimal salinity habitat (see Appendix B of the 2000 REIR/EIS).
- A7-2. The DeltaSOS model was used to simulate water supply conditions and Delta Wetlands diversion and discharge operations for assessment of the project's potential effects on water supply, hydrodynamics, water quality, and fishery resources. DeltaSOS modeling was based on the initial water budget developed from results of simulations performed by DWR using the operations planning model DWRSIM. The modeling was based on anticipated regulatory standards, facilities, and demands for export. As described in Chapter 3A of the 1995 DEIR/EIS and Chapter 3 of the 2000 REIR/EIS, the DeltaSOS model assumed implementation of the 1995 WQCP objectives, as interpreted by DWR (see FEIS Chapter 3A).

The impact analyses of the 1995 DEIR/EIS concluded that the project could result in several significant effects on water quality and fisheries; mitigation measures were recommended to reduce impacts to a less-than-significant level.

See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for a discussion of the biological opinion measures that were incorporated into the project description to reduce potential project effects on aquatic resources to a less-than-significant level. These measures also reduce potential project effects on salinity.

**A7-3.** The mechanism affecting the relative abundance of estuarine organisms is currently unknown; however, the optimal salinity habitat area and Delta outflow appear to be as closely associated with abundance of estuarine organisms as is X2.

DFG, NMFS, and USFWS addressed concerns about project effects on X2 and optimal salinity habitat by including in the FOC several terms that directly limit the change in the location of X2 that Delta Wetlands diversions would be allowed to cause. These terms are described generally in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", and are described in more detail below. The full FOC text is included in Appendix B of the 2000 REIR/EIS.

Diversion measure 1 requires that X2 be at or downstream of Chipps Island (kilometer [km] 74) before Delta Wetlands begins initial diversions to storage for the current water year. This requires an effective outflow of about 12,000 cubic feet per second (cfs). Diversion measure 2 requires that X2 remain at or downstream of Collinsville (km 81) during Delta Wetlands diversions in September through March. Diversion measure 3 prohibits Delta Wetlands diversions from causing an upstream

movement of X2 of more than 2.5 km during October through March; this restriction is generally equivalent to limiting diversions to about 25% of outflow. Diversion measure 6 limits project diversions to 25% of outflow from October through December and to 15% of outflow from January through March. The latter restriction would limit the upstream movement of X2 to less than 1.5 km during January through March. These FOC diversion measures are designed to prevent Delta Wetlands Project operations from interfering with the estuarine habitat protection provided by the WQCP X2 objectives.

The FOC and RPMs provide numerous other protections through restrictions on Delta Wetlands diversions. See the listing of diversion criteria under "Indirect Effects of Delta Wetlands Project Diversions and Discharges on Flows, Downstream Transport, Area of Optimal Salinity Habitat, and Entrainment" in Master Response 4. The protections provided through the biological opinions benefit nonlisted species such as starry flounder in addition to listed species.

A7-4. The commenter states that under Alternative 2, project discharges would not be constrained by the export limits set in the 1995 WQCP. In-Delta storage was not anticipated as part of SWP and CVP operations; as a result, the 1995 WQCP does not address how discharges for export from in-Delta (e.g., Delta Wetlands) storage would be factored into the calculations of inflow in the E/I ratio. Therefore, the 1995 DEIR/EIS analysis was based on the assumption that the project would be constrained by the export limits, but provided two interpretations of how the limits would apply to the proposed project. The assumptions on which Alternatives 1 and 2 are based do not affect the baseline used for the impact analysis; see response to Comment A7-2 regarding the assumptions for baseline conditions.

As described in the 1995 DEIR/EIS and the 2000 REIR/EIS, Delta Wetlands Project operations would not affect compliance with the minimum-outflow objectives in the 1995 WQCP, and they would not affect inflow from the San Joaquin, Sacramento, or Mokelumne Rivers. Therefore, project discharges would not affect salinity conditions in the south Delta as they relate to river inflows or Delta outflow; the project could affect salinity only if Delta Wetlands discharged water with salinity higher than that of the receiving water or if diversions resulted in substantial seawater intrusion. Project effects on salinity are evaluated in Chapter 3C of the 1995 DEIR/EIS and Chapter 4 of the 2000 REIR/EIS (see FEIS Chapter 3C). See also responses to Comments A2-2 and A4-3.

- **A7-5.** See Master Response 1, "Project Objectives: Analyzing Effects of Water Transfers, Banking, and Augmenting Outflow", for discussion regarding the use of Delta Wetlands discharges to provide water for outflow.
- A7-6. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for a description of the FOC terms and RPMs included in the NMFS, USFWS, and DFG biological opinions and incorporated into the project description to protect delta smelt, winter-run chinook salmon, and other aquatic species and their habitats. If the lead agencies approve Delta Wetlands' permit applications,

Delta Wetlands will be required to implement the terms of the biological opinions as part of its operating conditions. The letter from Jeff Rosenbloom of the Wetlands and Sediment Management Section is comment letter A6 of this volume; see also the individual responses to comments in that letter above.

- **A7-7.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".
- A7-8. The DFG, NMFS, and USFWS biological opinions were included in Appendices C, D, and E, respectively, of the 2000 REIR/EIS. For the assessments of water supply and operations and of water quality, new simulations of project diversion and discharge operations were performed; these included the project operating parameters detailed in the biological opinions. Chapter 5 of the 2000 REIR/EIS described how the FOC and RPMs included in the biological opinions reduce project effects on aquatic habitat and fisheries to a less-than-significant level (see FEIS Chapter 3F). See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

# Section B. State Agencies

PETE WILSON, Governor

STATE OF CALIFORNIA

## DELTA PROTECTION COMMISSION

14215 RIVER ROAD P.O. BOX 530 WALNUT GROVE, CA 95690 PHONE: (916) 776-2290 FAX: (916) 776-2293



September 15, 1995

Jim Sutton
SWRCB
P.O. Box 2000
Sacramento, CA 95812-2000

Subject: Delta Wetlands Project; SCH No. 95093022

Dear Mr. Sutton:

I am writing regarding the above above-named project. The project has not been reviewed by the Commission, so these are staff comments only.

The proposed Delta Wetlands Project is located in the Primary Zone of the Delta in both Contra Costa and San Joaquin Counties (see map enclosed). Section 29723(a) of the Delta Protection Act of 1992 states "'development' means on, in, over, or under land or water, the placement or erection of any solid material or structure; discharge of any dredged material or of any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land...construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility; and the removal or harvesting of major vegetation other than for agricultural purposes."

The Delta Protection Act does <u>not</u> apply to actions of State or federal agencies, only to actions of local governments. Actions which may require local government approval include: authorization of private recreational facilities, hunting clubs, etc.

The Delta Protection Act states that local government (Contra Costa and San Joaquin Counties) may approve "development" within the Primary Zone only after making all the following written findings on the basis of substantial evidence in the record (Section 29765). For those portions of the project subject to local approval, each County must find:

- (a) The development will not result in wetland or riparian loss.
- (b) The development will not result in the degradation of water quality.

**B1-1** 

- (c) The development will not result in increased nonpoint source pollution or soil erosion, including subsidence or sedimentation.
- (d) The development will not result in degradation or reduction of Pacific Flyway habitat.
- (e) The development will not result in reduced public access, provided that access does not infringe upon private property rights.
- (f) The development will not expose the public to increased flood hazards.
- (g) The development will not adversely impact agricultural lands or increase the potential for vandalism, trespass, or the creation of public or private nuisances on private or public land.
- (h) The development will not result in the degradation or impairment of levee integrity.
- (i) The development will not adversely impact navigation.
- (j) The development will not result in any increased requirements or restrictions upon agricultural practices in the Primary Zone.

The environmental documents prepared regarding this project do indicate that the project is located in the Primary Zone of the Delta and include the analysis required by local governments.

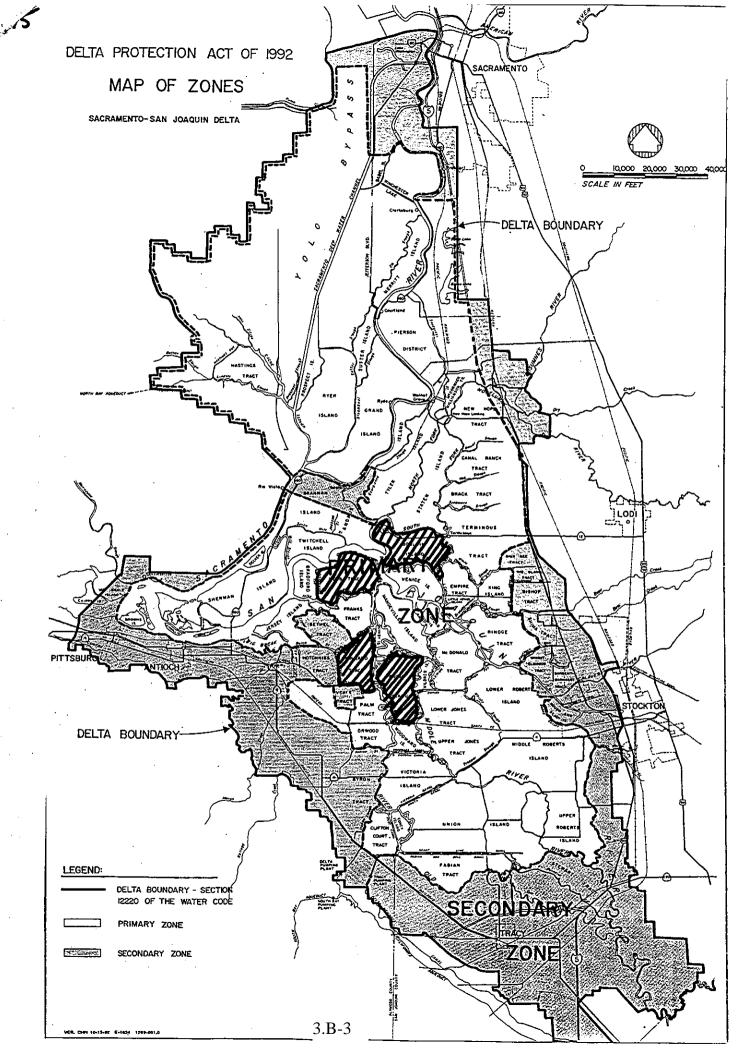
Please feel free to call if you have any questions about these comments.

Sincerely,

Margit Aramburu Executive Director

Enclosure

cc: Supervisor Tom Torlakson Supervisor Ed Simas Roberta Goulart Peggy Keranen B1-1 cont'd



## **Delta Protection Commission**

- **B1-1.** The commenter notes that the Delta Protection Act would apply to the Delta Wetlands Project because permits for the recreation facilities and any land use permits would require local government approval. Evidence to address the findings listed in the comment can be found in the following sections of Volume I of this FEIS (the letters correspond to the statements in the comment):
  - (a) Chapter 3G, "Vegetation and Wetlands";
  - (b) Chapter 3C, "Water Quality";
  - (c) Chapter 3C, "Water Quality";
  - (d) Chapter 3H, "Wildlife";
  - (e) Chapters 3J, "Recreation and Visual Resources", and 3L, "Traffic and Navigation";
  - (f) Chapter 3D, "Flood Control";
  - (g) Chapter 3I, "Land Use and Agriculture";
  - (h) Chapter 3D, "Flood Control";
  - (i) Chapter 3L, "Traffic and Navigation"; and
  - (j) Chapter 3I, "Land Use and Agriculture".

The commenter states: "The environmental documents prepared regarding this project... include the analysis required by local governments". With this statement, the commenter verifies that the 1995 DEIR/EIS includes sufficient information for local governments to make findings under the Delta Protection Act.

Additionally, an analysis has been completed to examine the Delta Wetlands Project's consistency with the goals of the Delta Protection Commission's Land Use and Resource Management Plan for the Primary Zone of the Delta (1995); see the following table. This information has been added to Table 3I-7.

Policy/Principle	Consistency	
Environmental Principles		
P-1. The priority land use of areas of prime soil shall be agriculture. If commercial agriculture is no longer feasible due to subsidence or lack of adequate water supply or water quality, land uses which protect other beneficial uses of Delta resources, and which would not adversely affect agriculture on surrounding lands, or viability or cost of levee maintenance, may be permitted. If temporarily taken out of agriculture production due to lack of adequate water supply or water quality, the land shall remain reinstatable to agricultural production for the future.	Partially Inconsistent	Implementation of the proposed project would remove agricultural land from production; however, the proposed project would not affect agricultural activities on surrounding land, and, with the exception of borrow-pit areas, the land could be returned to agricultural use if project operations were terminated.
P-2. Agricultural and land management practices shall minimize subsidence of peat soils. Local governments shall support study of agricultural methods which minimize subsidence and assist in educating landowners and managers as to the value of utilizing these methods.	Consistent	Implementation of the Delta Wetlands Project would minimize subsidence on Webb Tract, Holland Tract, Bacon Island, and Bouldin Island.
P-3. Lands managed primarily for wildlife habitat shall be managed to provide several inter-related habitats. Delta-wide habitat needs should be addressed in development of any wildlife habitat plan. Appropriate programs, such as "Coordinated Resource Management and Planning" and "Natural Community Conservation Planning" should ensure full participation by local government and property owner representatives.	Consistent	Habitat management under the proposed project would provide open space, protection of endangered species, and preservation of wildlife habitat. Bouldin Island and Holland Tract would be managed to provide breeding and foraging habitat for several wildlife species groups.
Utilities and Infrastructure Policies		
P-2. New houses built in the Delta agricultural areas shall continue to be served by independent potable water and wastewater treatment facilities. Uses which attract a substantial number of people to one area, including any expansions to the Delta communities, recreational facilities, or businesses, shall provide adequate infrastructure improvements or pay to expand existing facilities, and not overburden the existing limited community resources. New or expanded construction of wastewater disposal systems shall ensure highest feasible standards are met. Independent treatment facilities shall be monitored to ensure no cumulative adverse impact to groundwater supplies.	Consistent	Drinking water for recreation facilities would be imported as needed or supplied using onsite treatment subject to county and state standards. Sewer disposal would comply with the requirements of the Central Valley Regional Water Quality Control Board. A private solid waste collection agency certified to operate in Contra Costa and San Joaquin Counties would be contracted to serve the recreation facilities.

Policy/Principle	Consistency	
Land Use		
P-6. Subsidence control shall be a key factor in evaluating land use proposals.	Consistent	Implementation of the proposed project would not accelerate subsidence.
P-7. Structures shall be set back from levees and areas which may be needed for future levee expansion.	Consistent	The proposed project would improve levees on all four project islands. Although recreational facilities would be located adjacent to the levee crest, they would not interfere with future levee expansion.
Agriculture		
P-1. Commercial agriculture in the Delta shall be supported and encouraged as a key element in the State's economy and in providing the food supply needed to sustain the increasing population of the State, the Nation, and the world.	Inconsistent	Implementation of the proposed project would result in land being removed from agricultural production.
P-8. Encourage management of agricultural lands which maximize wildlife habitat seasonally and year-round, through techniques such as sequential flooding in fall and winter, leaving crop residue, creation of mosaic of small grains and flooded areas, controlling predators, controlling poaching, controlling public access, and others.	Consistent	Agricultural fields on the habitat islands will be managed to maximize wildlife habitat values. Requirements specified in the habitat management plan call for the provision of high-value foraging habitat for wintering waterfowl through creation of fields of corn rotated with wheat, mixed agriculture/seasonal wetland, seasonal managed wetland, and pasture/hay fields.

Policy/Principle	Consistency	
Water		
P-1. Salinity levels in Delta waters shall ensure full agricultural use of Delta agricultural lands, provide habitat for aquatic life, and meet requirements for drinking water and industrial uses.	Consistent	The Delta Wetlands Project would not result in conflicts with the requirements of the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento—San Joaquin Delta Estuary (WQCP) for agricultural water quality. The final operations criteria and other reasonable prudent measures adopted as part of the Endangered Species Act consultation process include restrictions on project operations to minimize effects on aquatic habitat and fish. Project effects on drinking water quality would be reduced to a less-than-significant level through the implementation of the mitigation measures.
P-2. Design, construction, and management of any flooding program to provide seasonal wildlife habitat on agricultural lands shall incorporate "best management practices" to minimize mosquito breeding opportunities and shall be coordinated with the local vector control district. Each of the four vector control districts in the Delta provides specific wetland/mosquito management criteria to landowners within their district.	Consistent	Implementation of the proposed project would result in the need for a significant increase in abatement levels on Delta Wetlands Project islands. Coordination with responsible mosquito abatement districts and implementation of appropriate abatement practices would offset the creation of potential mosquito production sources under the Delta Wetlands Project alternatives.
P-3. Water agencies at local, state, and federal levels shall work together to ensure that adequate Delta water quality standards are set and met and that beneficial uses of State waters are protected consistent with the CALFED agreement.	Consistent	Implementation of the Delta Wetlands Project would require ongoing consultation with water agencies at the state, federal, and local levels.
Recreation and Access		
P-2. To minimize impacts to agriculture and to wildlife habitat, local governments shall encourage expansion of existing private water-oriented commercial recreational facilities over construction of new facilities. Local governments shall ensure any new recreational facilities will be adequately supervised and maintained.	Inconsistent	Implementation of the Delta Wetlands Project would include the construction of several new private recreation facilities in the Delta.

Policy/Principle	Consistency	
Levees		
P-1. Delta levees shall be maintained to protect human life, to provide flood protection, to protect private and public property, to protect historic structures and communities, to protect riparian and upland habitat, to promote interstate and intrastate commerce, to protect water quality in the state and federal water projects, and to protect recreational use of the Delta area. Delta levee maintenance and rehabilitation shall be given priority over other uses of the levee areas. To the extent levee integrity is not jeopardized, other uses, including support of vegetation for wildlife habitat, shall be allowed.	Consistent	Levee improvements on the project reservoir islands would include raising and widening existing levees to bear the stresses of interior water storage of up to 6 feet. Levee improvements for both habitat and reservoir islands would be designed to meet or exceed state-recommended criteria for levees outlined in California Department of Water Resources Bulletin 192-82.

### DEPARTMENT OF BOATING AND WATERWAYS

1629 S STREET SACRAMENTO, CA 95814-7291 (916) 445-6281



September 19, 1995

Mr. Jim Sutton State Water Resources Control Board Division of Water Rights P.O. Box 2000 Sacramento, California 95812-2000

Mr. Jim Monroe U.S. Army Corps of Engineers Regulatory Branch 1325 "J" Street, Room 1444 Sacramento, California 95814-2922

Dear Mr. Sutton and Mr. Monroe:

Thank you for the opportunity to review the Delta Wetland Environmental Impact Report. Since the project would occur in or near navigable waterways, i.e., the Delta, the Department would like to offer the following recommendations:

- If waterway markers are proposed to a warn boaters of construction activities, barges, controlled speed areas, etc., it is recommended that the project applicant receive a copy of the State's Waterway Marking System Regulations, i.e., Section 7000, et seq., of the California Code of Regulations, to be aware of placement requirements (copy enclosed).
- 2) If the State project proponent (DWR), or any local government entity, need(s) to enact regulation(s) to regulate boating activities in the affected area, these regulations must be enacted only in the areas allowed pursuant to Section 660(a) of the California Harbors and Navigation Code (copy enclosed).
  - Additionally, these regulations(s), if enacted by state or local government agencies, must be submitted for review and approval to the Department of Boating and Waterways, in accordance with Section 662 of the California Harbors and Navigation Code (copy enclosed).
- The air strip on Bouldin Island, referred to on page 18 of the Executive Summary of the EIR/EIS Delta Wetlands Project, under "Recreational Facilities", may have an affect on wind-propelled craft or small paddle crafts in the area, if aircraft use low-flying approaches in take-offs and landings.

B2-1

B2-2

**B2-3** 

Mr. Sutton and Mr. Monroe September 19, 1995 Page Two

Therefore, it is recommended that if small airplanes or helicopters use (or will use) this facility on a regular basis, consideration should be given to boating safety and navigation, especially in the presence of wind-propelled craft, such as sailboats and wind-surfers, and small manually propelled craft, such as canoes and kayaks.

B2-3 cont'd

If you have questions regarding these comments, please contact Mike Sotelo of my staff at (916) 322-1823.

Sincerely,

John R. Bañuelos

Director 6 -

Enclosure

(b) All floodlights or headlights which may interfere with the proper navigation of an approaching vessel shall be so shielded that the lights will not blind the pilot of such vessel.

NOTE: Authority cited: Sections 652 and 655.3, Harbors and Navigation Code. Reference: Sections 652 and 655.3, Harbors and Navigation Code.

# 6697. Prima-Facie Evidence of Negligent Operation.

Pursuant to the provisions of Section 655 of the Harbors and Navigation Code, the following described acts endanger life, limb or property and constitute evidence of reckless or negligent operation:

- (a) Riding on the bow, gunwale or transom of a vessel propelled by machinery underway when such position is not protected by railing or other reasonable deterrent to falling overboard, or riding in a position or manner which is obviously dangerous. These provisions shall not apply to a vessel's crewmen in the act of anchoring, mooring or making fast to a dock or another vessel, or the necessary management of a sail.
- (b) Maneuvering towed skiers, or other devices, so as to pass the towline over another vessel or its skier.
- (c) Navigating a vessel, skis or other devices between a towing vessel and its tow or tows.

NOTE: Authority cited: Sections 652 and 655, Harbors and Navigation Code. Reference: Sections 650, 655 and 655.3, Harbors and Navigation Code.

# Article 6. Waterway Marking System

# 7000. Scope.

Pursuant to the authority vested in it by Section 659, Harbors and Navigation Code, the Department adopts rules and regulations for a uniform system for marking the State's waters; such rules and regulations to establish, (a) a system of regulatory markers for use on all waters of the State to meet needs not provided for by the U.S. Coast Guard system of navigational aids, and (b) a system of navigational aids for use on the waters of the State not marked by the U.S. Coast Guard and/or not determined to be United States navigable waters; provided that such rules and regulations shall not be in conflict with the markings prescribed by the U.S. Coast Guard.

NOTE: Authority cited: Section 659, Harbors and Navigation Code. Reference: Sections 650 and 659, Harbors and Navigation Code.

# 7001. Definition (as used in this article).

- (a) Waterway marker is any device designed to be placed in, on or near the water to convey an official message to a boat operator on matters which may affect health, safety, or well being, except that such devices of the United States or an agency of the United States are excluded from the meaning of this definition.
- (b) Regulatory Marker is a waterway marker which has no equivalent in the U.S. Coast Guard system of navigational aids.
- (c) State Aid to Navigation is a waterway marker which is the equivalent of a U.S. Coast Guard aid to navigation.

- (d) Buoy is any device designed to float which is anchored in the water and which is used to convey a message.
- (e) Sign is any device for carrying a message which is attached to another object such as a piling, buoy, structure or the land itself.
- (f) A Display Area is the area on a sign or buoy needed for display of a waterway marker symbol.
- (g) Symbols are geometric figures such as a diamond, circle, rectangle, used to convey a basic message.
- (h) "Department" means the Department of Boating and Waterways. NOTE: Authority cited: Section 659, Harbors and Navigation Code. Reference: Sections 650 and 659, Harbors and Navigation Code.

# 7002. Waterway Markers Used on the Waters of This State Shall Be As Follows.

- (a) State Aids to Navigation.
- (1) A red buoy or sign shall indicate that side of a channel to be kept to the right of a vessel when entering the channel from the main water body or when proceeding upstream; a green buoy or sign shall indicate that side of a channel to be kept to the left of a vessel when entering the channel from the main water body or when proceeding upstream.

These buoys or signs shall normally be used in pairs and only for the purpose of marking a clearly defined channel.

- (2) A red and white vertically striped buoy or sign shall indicate the center of a navigable waterway.
- (3) A red and green horizontally striped buoy or sign shall indicate a junction in the channel, or a wreck or obstruction which may be passed on either side. If the top band is red, the preferred channel is to the left when proceeding upstream or leaving the main water body. If the top band is green the preferred channel is to the right when proceeding upstream or leaving the main water body.
  - (4) White buoys shall indicate anchorage areas.
- (5) The shapes of state aids to navigation shall be compatible with the shapes established by Coast Guard regulations for the equivalent Coast Guard aids to navigation.
- (6) When lights are placed on buoys as an aid to navigation, their characteristics shall be compatible with those designated by Federal Regulations for federal aids to navigation. Red lights for this purpose shall be used only on red buoys and green lights only on green buoys.
  - (b) Regulatory Markers.
- (1) A diamond shape of international orange with white center shall indicate danger. The nature of the danger may be indicated by words or well-known abbreviations in black letters inside the diamond shape, or above and/or below it on white background.
- (2) A diamond shape of international orange with a cross of the same color within it against a white center without qualifying explanation shall indicate a zone from which all vessels are excluded.

- (3) A circle of international orange with white center will indicate a control or restriction. The nature of the control or restriction shall be indicated by words, numerals, and/or well-known abbreviations in black letters inside the circle. Additional explanation may be given above and/or below it in black letters on white background.
- (4) A rectangular shape of international orange with white center will indicate information, other than a danger, control or restriction, which may contribute to health, safety or well-being. The message will be presented within the rectangle in black letters.
  - (c) Letters or Numbers on Waterway Markers.
- (1) Numbers, letters or words on a state aid to navigation or regulatory marker shall be placed in a manner to enable them to be clearly visible to an approaching or passing vessel. They shall be block style, well proportioned and as large as the available space permits. Numbers and letters on red or black backgrounds shall be white; numbers and letters on white backgrounds shall be black.
- (2) State aids to navigation shall be numbered or lettered for identification. Red buoys and signs marking channels shall be identified with even numbers, and green buoys and signs marking channels shall be identified with odd numbers, the numbers increasing from the main water body or proceeding upstream. Buoys and signs indicating the center of a waterway or a channel junction shall be identified by letters of the alphabet. All numbers and letters used to identify state aids to navigation shall be preceded by the letters "CF."
- (d) Reflectorized Material. Where reflectorized materials are used, a red reflector will be used on a red buoy, a green reflector on a green buoy, and white reflectors only will be used on all other waterway markers, except that orange reflectors may be used on orange portions of regulatory markers, and yellow reflectors may be used on Special Markers, as defined in Section 7002.1.

NOTE: Authority cited: Section 659, Harbors and Navigation Code. Reference: Sections 650 and 659, Harbors and Navigation Code.

# 7002.1. Special Markers.

Special markers are not primarily intended to assist navigation, but are used to indicate a special area or feature (i.e., traffic separation, anchorage areas, dredging, fish net areas, etc.) whose nature may be apparent from reference to a chart or other nautical document.

(a) Aids used to mark these areas or systems will be all yellow. NOTE: Authority cited: Section 659, Harbors and Navigation Code. Reference: Sections 650, 655.3, and 659, Harbors and Navigation Code.

# 7003. Authority to Place Markers.

(a) No waterway marker shall be placed on, in, or near the waters of the State unless such placement is authorized by the agency or political subdivision of the State having power to give such authorization, except that the provisions of this section shall not apply to private aids to navigation under the jurisdiction of the U.S. Coast Guard.

(b) Such agency or political subdivision of the State will, prior to authorizing placement, obtain the necessary clearances of any federal and state agencies concerned. Nothing herein contained shall be construed to require such prior clearance with the Department.

(c) The agency or political subdivision of the State authorizing the placement of a waterway marker will inform the Department of the

following:

- (1) Exact location of the marker, expressed in latitude and longitude, or in distance and direction from one or more fixed objects whose precise location is known.
- (2) The description and purpose of the marker, including its identifying number, if any, as required by Section 7002(a) (5), above.

  NOTE: Authority cited: Section 659, Harbors and Navigation Code. Reference: Sections 650

and 659, Harbors and Navigation Code.

7004. Maintenance of Waterway Markers.

Waterway markers shall be maintained in proper condition, or be replaced or removed.

NOTE: Authority cited: Section 659, Harbors and Navigation Code. Reference: Sections 650 and 659, Harbors and Navigation Code.

# 7005. Display of Waterway Markers.

(a) A waterway marker may be displayed as a sign on a fixed support, as a buoy bearing a symbol on its surface, or as a sign mounted on a buoy.

(b) When a buoy is used to carry a symbol on its surface, it will be white, with a band of international orange at the top and a band of international orange above the water line at the bottom.

- (c) A buoy whose sole purpose is to carry a sign above it will be marked with three bands of international orange alternating with two bands of white, each band occupying approximately one-fifth of the total area of the buoy above the water line, except where the sign itself carries orange bands; however, nothing in these regulations will be construed to prohibit the mounting of a sign on a buoy which has been placed for a purpose other than that of carrying a sign.
- (d) When symbols are placed on signs, a suitable white background may be used outside the symbol.

NOTE: Authority cited: Section 659, Harbors and Navigation Code. Reference: Sections 650 and 659, Harbors and Navigation Code.

# 7006. Specifications for Waterway Markers.

(a) The size, shape, material, and construction of all markers, both fixed and floating, shall be such as to be observable under normal conditions of visibility at a distance such that the significance of the marker or aid will be recognizable in time to avoid danger.

(b) Waterway markers shall be made of materials which will retain, despite weather and other exposures, the characteristics essential to their

basic significance, such as color, shape, legibility and position.

NOTE: Authority cited: Section 659, Harbors and Navigation Code. Reference: Sections 650 and 659, Harbors and Navigation Code.

7007. Other Waterway Marking Devices.

(a) Mooring Buoys. In order that mooring buoys shall not be mistaken for aids to navigation or regulatory markers, they shall be white, with a blue band clearly visible above the waterline.

(b) Placement of markers such as mooring buoys and permanent race course markers will be processed in the same manner as waterway

markers.

(c) Such markers shall not be of a color, shape, configuration or marking which could result in their confusion with any federal or state aid to navigation or any state regulatory marker, and shall not be placed where they will obstruct navigation, cause confusion, or constitute a hazard.

NOTE: Authority cited: Section 659, Harbors and Navigation Code. Reference: Sections 650 and 659, Harbors and Navigation Code.

7008. The Divers Flag.

- (a) A red flag with a white diagonal running from the upper left hand corner to the lower right hand corner (from masthead to lower outside corner) and known as the "Divers Flag" shall when displayed on the water, indicate the presence of a person engaged in diving in the water in the immediate area.
- (b) Recognition of this flag by regulation will not be construed as conferring any rights or privileges on its users, and its presence in a water area will not be construed in itself as restricting the use of the water area so marked.

(c) Operators of vessels will, however, exercise precaution commensurate with conditions indicated.

(d) This flag may be displayed only when diving is in progress, and its display in a water area when no diving is in progress is that area will constitute a violation of the regulation and of section 659 of the Harbors and Navigation Code.

(e) Nothing in this section will require the carriage of a divers flag for

any purpose.

NOTE: Authority cited: Section 659, Harbors and Navigation Code. Reference: Sections 650, and 659, Harbors and Navigation Code.

7009. The Ski Flag.

(a) A red or orange flag measuring no less than 12 inches on each side, in the shape of a square or rectangle, mounted or displayed in such a manner as to be visible from every direction shall be known as a ski flag.

(b) The use of this flag will not be construed as conferring any rights or privileges on its users, and its display will not be construed in itself as restricting the use of the water in the vicinity of the vessel displaying the flag.

(c) Operators of vessels will, however, exercise precaution commen-

surate with conditions indicated.

(d) The ski flag shall be displayed when one or more of the following conditions exists:

- (1) A downed skier.
- (2) A skier in the water preparing to ski.
- (3) A ski line extended from the vessel.
- (4) A ski in the water in the vicinity of the vessel. The ski flag shall not be displayed at any other time.

NOTE: Authority cited: Sections 652, 658, 658.7 and 659, Harbors and Navigation Code. Reference: Sections 650, 655.3, 658.7 and 659, Harbors and Navigation Code.

# Article 7. For Hire Vessel Operator's License

# 7500. Definitions.

- (a) As used in Article 2, (commencing with Section 760) Chapter 5 of Division 3, Harbors and Navigation Code, the terms "carrying more than three passengers for hire" and "carrying passengers for hire" mean the carriage of more than three persons by a vessel for a valuable consideration, whether directly or indirectly flowing to the owner, charterer, operator, agent or any other person interested in the vessel.
- (b) "Passenger" means every person, other than the master and a member of the crew or other persons employed or engaged in any capacity on board a vessel in the business of that vessel.
- (c) "Department" means the Department of Boating and Waterways. NOTE: Authority cited: Section 770, Harbors and Navigation Code. Reference: Section 760, Harbors and Navigation Code.

# 7501. Requirements for Examination.

- (a) Prior to the issuance of a For-Hire Vessel Operator's License, every applicant shall meet the following requirements:
  - (1) Have attained the age of eighteen (18) years.
- (2) Show evidence of at least one year's experience in operating the type of motorboat or motor vessel for which the applicant requests license to operate, on the type of water for which applicant requests license to operate.
  - (A) (Reserved)
- (B) Other experience or training, which in the judgment of the Department is a reasonable equivalent, may be substituted.
- (3) Furnish information to the Department on forms provided by the Department regarding the following:
- (A) Name, address, date and place of birth, and description of applicant.
  - (B) Type of vessel the applicant requests license to operate.
  - (C) Waters on which applicant requests license to operate.
  - (D) Statement as to physical defects.
  - (E) Statement of experience and training in vessel operation.
- (F) Certified statements regarding applicant's boat handling ability and moral character from three persons having knowledge of these matters but who are not members of the applicant's family.
- (G) Certification of the truth of the statements submitted in his application.

- (e) A violation of this section is a infraction punishable as provided in subdivision (a) of Section 668.
- 658.5. Age limitations. (a) Any person who permits any other person under 12 years of age to operate any of the following is guilty of an infraction:
- (1) A motorboat engaged in towing a person on water skis, an aquaplane, or similar device.
  - (2) A motorboat designed to carry only one person.
- (3) A motorboat propelled by machinery having an aggregate of more than 10 horsepower without the supervision of a person 18 years of age or older aboard the motorboat, except for a dinghy used directly between a moored vessel and the shoreline, and return.
- (b) Any person under 12 years of age who operates any motorboat, when prohibited under subdivision (a), is guilty of an infraction.
- (a) Failure of the operator of a vessel involved in towing a skier 658.7. Ski flag. to display or cause to be displayed a ski flag, as described in subdivision (a) of Section 7009 of Title 14 of the California Code of Regulations, to indicate any of the following conditions, is an infraction punishable by a fine not exceeding fifteen dollars (\$15):
  - (1) A downed skier.
  - (2) A skier in the water preparing to ski.
  - (3) A ski line extended from the vessel.
  - (4) A ski in the water in the vicinity of the vessel.
- (b) Subdivision (a) does not apply to a performer engaged in a professional exhibition or a person engaged in a regatta, vessel or water ski race or competition. or other marine event authorized pursuant to Section 268.
- 659. Uniform navigational marking of waters. The department may make rules and regulations for the uniform navigational marking of the waters of this state. Such rules and regulations shall not be in conflict with markings prescribed by the United States Coast Guard. No city, county, or person shall mark the waters of this state in any manner in conflict with the markings prescribed by the department.
- 660. Application of chapter to all waters; local boating regulations. (a) Any ordiance, law, regulation, or rule relating to vessels, which is adopted pursuant to provisions of law other than this chapter by any entity other than the department, including but not limited to any county, city, port authority, district, or any state agency other than the department shall, notwithstanding any other provision of law, pertain only to time-of-day restrictions, speed zones, special-use areas, and sanitation and pollution control, and the measure shall not conflict with this chapter or the regulations adopted by the department. Except as provided in subdivision (c), any measure relating to boats or vessels adopted by any governmental entity other than the department shall be submitted to the department prior to adoption and at least 30 days prior to the effective date thereof.
- (b) The department may make special rules and regulations governing the use of boats or vessels on any body of water within the territorial limits of two or more counties, cities, or other political subdivisions if no special rules or regulations exist or if the department determines that the local laws regulating the use of boats or vessels on that body of water is not uniform and that uniformity is practicable and necessary.
- (c) (1) Any entity, including but not limited to any county, city, port authority, district, or state agency, otherwise authorized by law to adopt measures governing the use and equipment, and matters relating thereto, of boats or vessels, may adopt emergency rules and regulations which are not in conflict with the general laws of the state relating to boats and vessels using any waters within the jurisdiction of the entity if those emergency rules and regulations are required to insure the safety of persons and property because of disaster or other public calamity.
- (2) The emergency rules and regulations adopted under paragraph (1) shall become effective immediately upon adoption and may remain in effect for not to



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## HARBORS AND NAVIGATION CODE

exceed 60 days thereafter. The emergency rules and regulations shall be submitted to the department on or before their adoption.

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- (3) After submission of emergency rules and regulations adopted pursuant to paragraph (1) to the department, the department may authorize the adopting entity to make the emergency rules and regulations effective for the period of time greater than 60 days that is necessary in view of the disaster or circumstances.
- 661. Limitation of liability of owner of a numbered vessel. (a) Every owner of an undocumented vessel numbered under this code is liable and responsible for the death of or injury to person or property resulting from negligence in the operation of such vessel, in the business of the owner or otherwise, by any person using and operating the same with the permission, express or implied, of the owner, and the negligence of such person shall be imputed to the owner for all purposes of civil damage. It shall be presumed that such vessel is being operated with the knowledge and consent of the owner if at the time of the injury, death or damage it is under the control of his or her spouse, father, mother, brother, sister, son, daughter, or other immediate member of the owner's family. Nothing contained in this chapter shall be construed to relieve any person from any liability which he would otherwise have, but nothing contained in this chapter shall be construed to authorize or permit any recovery in excess of injury or damage actually incurred.
- (b) The liability of an owner for imputed negligence imposed by this section and not arising through the relationship of principal and agent or master and servant is limited to the amount of ten thousand dollars (\$10,000) for the death of or injury to one person in any one accident and, subject to the limit as to one person, is limited to the amount of twenty thousand dollars (\$20,000) for the death of or injury to more than one person in any one accident and is limited to the amount of ten thousand dollars (\$10,000) for damage to property of others in any one accident.
- (c) In any action against an owner on account of imputed negligence as imposed by this section the operator of the vessel whose negligence is imputed to the owner shall be made a party defendant if personal service of process can be had upon the operator within this State. Upon recovery of judgment, recourse shall first be had against the property of the operator so served.
- (d) If there is recovery under this section against an owner based on imputed negligence, the owner is subrogated to all the rights of the person injured or whose property has been injured and may recover from the operator the total amount of any judgment and costs recovered against the owner.
- (e) If the bailee of an owner with the permission, expressed or implied, of the owner permits another to operate the vessel of the owner, then the bailee and such operator shall both be deemed operators of the vessel of the owner within the meaning of subdivisions (c) and (d) of this section.
- (f) Where two or more persons are injured or killed in one accident, the owner may settle and pay any bona fide claims for damages arising out of personal injuries or death, whether reduced to judgment or not, and the payments shall diminish to the extent thereof the owner's total liability on account of the accident. Payments aggregating the full sum of twenty thousand dollars (\$20,000) shall extinguish all liability of the owner for death or personal injury arising out of the accident which exists by reason of imputed negligence, pursuant to this section, and did not arise through the negligence of the owner nor through the relationship of prinicipal and agent or master and servant.
- (g) If a vessel is sold under a contract of conditional sale whereby the title to such vessel remains in the vendor, such vendor or his assignee shall not be deemed an owner within the provisions of this section relating to imputed negligence, but the vendee or his assignee shall be deemed the owner notwithstanding the terms of such contract, until the vendor or his assignee retakes possession of the vessel. A chattel mortgagee of a vessel out of possession is not an owner within the provisions of this section relating to imputed negligence.
- (h) No action based on imputed negligence under this section shall abate by reason of the death of any injured person or of any person liable or responsible under

## CALIFORNIA BOATING LAW

the provisions of this section. In any action for physical injury based on imputed negligence under this section by the executor, administrator, or personal representative of any deceased person, the damages recoverable shall be the same as those recoverable under Section 956 of the Civil Code.

662. Filing of local boating regulations. A copy of the ordinances or local laws adopted pursuant to this chapter, and of any amendments thereto, shall be filed in the office of the department.

- 663. Enforcement by peace officers; authority to stop and board vessels. Every peace officer of this state or of any city, county, city and county, or other political subdivision of the state shall enforce this chapter and any regulations adopted by the department pursuant to this chapter and in the exercise of that duty shall have the authority to stop and board any vessel subject to this chapter, where the peace officer has probable cause to believe that a violation of state law or regulations or local ordinance exists.
- 663.1. Arrest without warrant. Notwithstanding any other provision of law, a peace officer may, without a warrant, arrest a person who is involved in an accident in the waters of this state involving a vessel when the officer has reasonable cause to believe that the person had been operating the vessel while under the influence of an alcoholic beverage or any drug, or under the combined influence of an alcoholic beverage and any drug.
- 663.5. Enforcement by harbor policemen; marking of police vessels. Within the territorial limits of a county, city, or district, a harbor policeman regularly employed and paid as such by the county, city, or district shall also enforce the provisions of this chapter and any rules or regulations adopted by the department pursuant to this chapter and the provisions of Chapter 2 (commencing with Section 9850) of Division 3.5 of the Vehicle Code.

In the exercise of his duties, a harbor policeman shall have the authority to stop any vessel subject to this chapter and to issue written notices to appear in court pursuant to Section 664. As used in Section 664, the term "officer" shall include a harbor policeman regularly employed and paid as such by a county, city, or district.

Every harbor policeman who is on duty for the purpose of enforcing the provisions of this chapter, and the rules and regulations adopted by the department pursuant to this chapter, shall wear a full distinctive uniform, and, if he uses a vessel, the vessel shall be painted a distinctive color and appropriately marked as specified by the department to identify it as a harbor police vessel.

- 663.6. Vessel shall stop on lawful order. Every vessel subject to this chapter, if under way and lawfully ordered to stop and lie to by a peace officer or harbor policeman authorized to enforce the provisions of this chapter who is either in a uniform of a law enforcement agency or the harbor police or in a vessel that is distinctly marked as belonging to a law enforcement agency or to the harbor police, shall stop immediately and lie to, or shall maneuver in such a way as to permit the peace officer or harbor police vessel to come alongside.
- 663.7. Boating safety and enforcement aid program. (a) Each county of the state is entitled to receive state financial aid for boating safety and enforcement programs on waters under its jurisdiction as provided in this section. A boating safety and enforcement program, as used in this section, includes search and rescue operations, recovery of drowned bodies, enforcement of state and local measures for regulation of boating activities, inspection of vessels, and supervision of organized water events.
- (b) An entity other than a county, including the Department of Parks and Recreation, is entitled to receive aid for boating safety and enforcement programs on waters under its jurisdiction through the county in which it lies, and that aid shall be counted as aid to such county; except that aid provided under subdivision (d) for boating safety and enforcement programs of the Department of Parks and Recreation for waters under its jurisdiction shall not be counted as aid to a county.

## **California Department of Boating and Waterways**

**B2-1.** Safety measures used to warn boaters of construction activities were described under Mitigation Measure L-2 in Chapter 3L of the 1995 DEIR/EIS. The discussion has been changed to include language regarding Section 7000 *et seq.* of the California Code of Regulations. The first sentence under Mitigation Measure L-2 has been revised as follows in Chapter 3L in FEIS Volume I:

The construction contractor shall ensure that the barge is well marked and lit in accordance with Title 14 of the California Code of Regulations, Section 7000 et seq.

**B2-2.** Potential safety problems and mitigation measures for waterways surrounding the Delta Wetlands Project islands were discussed under "Waterway Traffic and Safety" in Chapter 3L of the 1995 DEIR/EIS. As mentioned in Chapter 3L, boats traveling within 200 yards upstream or downstream of boat docks are required to maintain a speed of 5 miles per hour. This state-enacted requirement is pursuant to Section 655.2(2)(C) of the California Harbors and Navigation Code. If a local government agency (e.g., Contra Costa or San Joaquin County marine patrol) determines that other waterway areas are affected by the Delta Wetlands Project and require enactment of speed restrictions or any other law, ordinance, or regulation pertaining to waterway use, the local agency would submit any such measures to the California Department of Boating and Waterways before adopting them and at least 30 days before the measures would become effective (Section 660(c), California Harbors and Navigation Code). Additionally, any waterway markers placed in, on, or near the water to convey an official message to a boat operator must conform to the uniform Waterway Marking System standards as adopted by the California Department of Boating and Waterways (Sotelo pers. comm.).

The text of Chapter 3L has been changed to include language regarding Sections 660 and 662 of the California Harbors and Navigation Code. Mitigation Measure L-3 has been revised to conclude with the following sentence:

Regulations for boating activities proposed by local agencies must be submitted to, reviewed, and approved by the California Department of Boating and Waterways in accordance with the California Harbors and Navigation Code before they are adopted and implemented.

B2-3. The use of the Bouldin Island airstrip under the proposed Delta Wetlands Project was discussed in the 1995 DEIR/EIS under "Recreation Facilities" in Chapter 2 (page 2-13 in Chapter 2 of FEIS Volume 1) and "Air Traffic from Bouldin Island" on page 3L-13 of the 1995 DEIR/EIS (page 3L-15 in Chapter 3L of FEIS Volume 1). Use of the airstrip under existing conditions was described under "Air Traffic from Bouldin Island" on page 3L-4 of the 1995 DEIR/EIS (see page 3L-5 in Chapter 3L of FEIS Volume 1). The airstrip is currently used for agricultural operations and would continue to be used in a limited capacity. The estimated number of flights (takeoffs and landings) generated by the Delta Wetlands Project would be less than the current number of flights generated during agricultural activities. The effect of air traffic on wind-propelled or small paddle crafts therefore would not be significant.

File No.: 95-MC-7Letter B3

1 November 1995

re: Draft EIR/EIS Delta Wetlands Project

52.S

Dear Mr. Sutton:

Our office has no additional comment on the above referenced document. However, thank you for your continued concern for protecting cultural resources.

**B3-1** 

Sincerely

Leigh Wordam

Assistant Coordinator

NORTHWEST INFORMATION CENTER
OF THE HISTORICAL RESOURCES
INFORMATION SYSTEM
Sonoma State University
1801 East Cotati Avenue, Bidg. 300
Rohnert Park, CA 94928-3609

STATE WATER RESOURCES CONTROL BOARD DIVISION OF WATER RIGHTS ATIN JIM SUTTON PO BOX 2000 SACRAMENTO CA 95812-2000

### **Northwest Information Center of the Historical Resources Information System**

1101 0111	rest information center of the Historical Resources information System
B3-1.	Chapter 3M, "Cultural Resources", addresses potential impacts and identifies mitigation measures for archeological and historic resources on the Delta Wetlands Project islands.

PETE WILSON, Governor

### DEPARTMENT OF WATER RESOURCES

1416 NINTH STREET, P.O. BOX 942836 SACRAMENTO, CA 94236-0001 (916) 653-5791



**B4-1** 

November 9, 1995

Mr. Jim Sutton
Division of Water Rights
State Water Resources Control Board
Post Office Box 2000
Sacramento, California 95818-2000

Mr. Jim Monroe Regulatory Branch U.S. Army Corps of Engineers 1325 J Street, 14th Floor Sacramento, California 95814

The Department of Water Resources requests a time extension, until January 10, 1996, for review of the Delta Wetlands Draft Environmental Impact Report/Environmental Impact Statement. The draft is lengthy and complex, and some of the most important conclusions are based upon mathematical modeling work that needs to be evaluated in detail.

While it would be possible to meet the current November 21, 1995 comment deadline, the comments of the Department of Water Resources would, necessarily, be based on a less thorough evaluation than if an extension is granted. We feel an extension would be in the best interests of all involved parties, as it may enable a number of concerns to be resolved which would otherwise have to be the subject of EIR comments.

In the event it is decided that an extension of the comment period is in order, I would appreciate being notified at your earliest convenience. My telephone number is (916) 327-1636. Thank you for your consideration.

Sincerely,

Rick Woodard

Staff Water Quality Specialist Division of Local Assistance

### **California Department of Water Resources**

B4-1.	The SWRCB and USACE extended the comment period by 30 days (to December 21, 1995) in response to this and other requests.

## CALIFORNIA STATE LANDS COMMISSION

GRAY DAVIS, Lieutenant Governor KATHLEEN CONNELL, Controller RUSSELL S. GOULD, Director of Finance



EXECUTIVE OFFICE

100 Howe Avenue, Suite 100-South Sacramento, CA 95825-8202

ROBERT C. HIGHT, Executive Officer (916) 574-1800 Fax (916) 574-1810 California Relay Service from TDD Phone 1-800-735-2922 from Voice Phone 1-800-735-2929

November 21, 1995

File Ref.:SD95-09-14.1

Mr. James Burroughs State Projects Coordinator The Resources Agency Attention: Nadell Gayou 1416 Ninth Street, Room 1311 Sacramento, CA 95814

State Water Resources Control Board Division of Water Rights Attention: Jim Sutton P. O. Box 2000 Sacramento, CA 95812-2000

U. S. Army Corps of Engineers Regulatory Branch Attention: Jim Monroe 1325 J Street, Room 1444 Sacramento, CA 95814-2922

Dear Mr. Burroughs, Mr. Sutton and Mr. Monroe:

Staff of the State Lands Commission (SLC) has reviewed the Draft Environmental Impact Report/Environmental Impact Statement (DEIR/S) for the Delta Wetlands Project, SCH No. 95093022. Based on this review, we offer the following comments.

#### Jurisdiction

The proposed project directly involves state-owned sovereign lands under the jurisdiction of the SLC, including, but not limited to, the San Joaquin, Mokelumne, False, Old and Middle Rivers, and Sandmound and Potato Sloughs. Placement of structures on any state-owned lands in the beds of tidal and navigable waterways requires a lease from the SLC, and thus the SLC is a Responsible Agency for this project. Examples of such structures within the proposed project include boat docks on the channel side of the island levees, or any rock slope protection which extends below the ordinary high water mark. As noted in the DEIR/S, dredging on sovereign lands is also under SLC jurisdiction and requires SLC authorization.

Mr. James Burroughs Mr. Jim Sutton Mr. Jim Munroe November 21, 1995 Page Two

All sovereign lands are held by the State subject to the public trust doctrine, and therefore the SLC is a Trustee Agency for the proposed project, along with being a Responsible Agency. In addition, the SLC is also Trustee Agency for any sovereign lands of the larger San Francisco Bay/ Delta region which would be indirectly affected by this project. Indirect effects of the project which have the potential of adversely impacting public trust resources include: erosion of channel islands, berms or levees from boat wakes or alterations in flows; localized scour of channels from diversion or discharge from islands; alterations of aquatic habitat through changes in delta flow patterns, temperature, and salinity; disturbance of wildlife by increased recreational boaters; and diminishment of recreational enjoyment or navigation by increased boat congestion resulting from the project.

The California Environmental Quality Act (CEQA) requires that such impacts to public trust resources as named above be addressed in the EIR/S. Additionally, pursuant to *National Audubon v. Superior Court*, 33 Cal.3d 419 (1983), the State Water Resources Control Board, when ruling on water rights applications, is required to evaluate the effects of the proposed appropriation on public trust resources and to protect them whenever feasible. The DEIR/S would be an appropriate and convenient forum in which to discuss this issue.

### Comments on Environmental Analysis

#### General

The primary focus of the DEIR/S is on impacts to island interiors, their land use and habitats, and on Delta water quality and overall Delta channel flow patterns. We are concerned about the inadequate analysis in the DEIR/S of other impacts which occur on the water or channel side of the levees, such as loss or disturbance to emergent marsh or other intertidal or subtidal physical habitats and increased boat traffic congestion and hazards. Additionally, the DEIR/S does not adequately address the issue of sewage disposal, both from dock usage and from the land side recreational facilities.

Another major concern is that the DEIR/S does not discuss project inconsistencies with the Delta Protection Commission's (DPC) Land Use and Resource Management Plan for the Primary Zone of the Delta, which was adopted February 23, 1995, pursuant to the Delta Protection Act of 1992. This discussion is required by the CEQA guidelines, § 15125 (b) and (c).

#### Specific

1. There are some elements of the project description which are not clear. Drawings which depict the siphon and pump stations, Figures 2-1 and 2-4, Appendix 2, show 10 boat

B5-4

**B5-1** 

**B5-3** 

Mr. James Burroughs Mr. Jim Sutton Mr. Jim Munroe November 21, 1995 Page Three

docks at each station. Each potential reservoir island could have 30 additional berths. These docks do not appear to have been considered with the impacts of the other docks associated with the recreational facilities.

B5-4 cont'd

2. There is no description of the environmental setting for any waterside or channel habitats, either at the specific vicinity of the proposed structures, or within the general region. Regional habitats should be addressed because of the project-related impacts due to boat wake erosion and disturbance by noise, trampling, dumping and related activities from the increased numbers of recreational boaters. The habitat descriptions should be added to the sections on vegetation and wetlands, wildlife, and fishery issues, with cross references in recreation and aesthetics.

**B5-5** 

Channel habitats of significance which could be affected by the project include emergent wetland vegetation, woody riparian vegetation, intertidal flats, and subtidal shoals with or without submerged vegetation. In addition to their importance to overall Delta ecosystem health, these habitats support a number of special status plants and animals which should be discussed.

3. Impacts resulting directly from the placement and operation of channel side facilities, such as pilings, docks, rock slope protection, water pipes, and siphons were not evaluated. Potential for such impacts is recognized in the DEIR/S, but in place of analysis for aquatic habitats, the DEIR/S has Mitigation Measure F-1, p. 3F-15. This measure requires that the applicant submit to Department of Fish and Game (DFG) and the Fish and Wildlife Service (USFWS) a habitat characterization map of the channel sites which could be directly affected by the project, and then "implement a fish habitat replacement plan". The text does not specify that any lead agency approval is required for this replacement plan.

B5-6

Deferring the impact analysis to a later date, outside of the DEIR/S process; allowing the project applicant to do the analysis; and deferring approval of the analysis to other agencies, specifically the DFG and the USFWS, violates several well-established principles of CEQA: 1) environmental review must be done at the earliest feasible stage, 2) commenting agencies and the public are entitled to a meaningful review of the environmental analysis and 3) the environmental analysis must be done directly by, or under contract to, the lead agency (See Sunsdtrom v. County of Mendocino, (1988) 202 Cal.App.3d 296 [248 Cal. Rptr.352] and Citizens for Quality Growth v. City of Mount Shasta, (1988) 198 Cal.App.3d 433 [243 Cal Rptr.727].

4. The DEIR/S does not adequately address impacts due to increased boating traffic. First, there is no evaluation of impacts of erosion due to boat wakes on channel habitats, as

**B5-7** 

Mr. James Burroughs Mr. Jim Sutton Mr. Jim Munroe November 21, 1995 Page Four

mentioned previously, or on levee security. Second, the impacts on congestion appear to be underestimated.

B5-7 cont'd

The methodology used to estimate impacts on boater safety and recreational congestion is not justified. The DEIR/S analysis looks at the Delta as a whole, not the likely affected environment in the vicinity. Also, there is no explanation of how the numbers of boat registrations relates to intensity of boating use, and thus boating impacts, for the project area. By contrast, the EIR for the Willow Berm Marina Expansion (SCH 940120510), located near the confluence of the Mokelumne and San Joaquin Rivers, contained a detailed analysis relating number of berths and to boating activity in the affected vicinity. The Willow Berm project was to add 95 berths to 220 existing berths. The proposed Delta Wetlands project would add 1,140 (30 x 38) new berths in the central Delta, overlapping with some of the same area analyzed in the Willow Berm Marina document.

**B5-8** 

To estimate impacts on traffic, the DEIR/S, p.3J-13, used percent of total boat registrations and percent of total Delta boater user days to arrive at impacts. We believe an analysis using similar methodology as in the study done for the Willow Berm Expansion be done to address the impacts in specific local channels, which would give a more realistic estimate of impacts. Cumulative impacts should be addressed in more detail as well.

ВЭ-8

5. The effects of pollutants from boating activities is underestimated. The DEIR/S, page 3C-36 appears to base pollutant impacts on the same methodology as was used for estimating boat traffic impacts — percent Delta-wide registrations and recreation userdays. This will not address the impacts on water quality which would be expected to be more concentrated in the immediate vicinity of the docks and the channels likely to be used for travel or destination.

**B5-9** 

6. The disposal of sewage from boats and from the proposed recreational facilities are poorly addressed. The DEIR/S main volume does not propose any boat pump-out facilities, either in the project description, or as mitigation (see pp. 3C-36,37). However, additional pumpout facilities were suggested as a mitigation measure in Appendix C6, page 12. This should be brought forth to the main document.

**B5-10** 

The project proposes to add recreational overnight facilities for up to 3,040 (38 x 80) people. The DEIR/S does not disclose how sewage disposal would be accomplished, but instead provides Mitigation Measure E-7: "Obtain Appropriate Local and State Permits for Recreation Facility Services and Utilities". No evidence has been presented that sewage disposal for this many people, in addition to the numbers using the boat docking

Mr. James Burroughs Mr. Jim Sutton Mr. Jim Munroe November 21, 1995 Page Five

facilities, could feasibly be handled, particularly in light of adopted policy P-3 in the DPC 1995 Plan, cited above. This policy states: "New sewage treatment facilities (including storage ponds) and areas for disposal of sewage effluent and sewage sludge shall not be located within the Delta Primary Zone". As discussed in Comment 3. above, CEQA requires that mitigation measures be addressed by the lead agency within the EIR review, not deferred to a later date or to another agency.

B5-10 cont'd

7. The evaluation of scour and other effects when pipes are discharging or taking up water is not clearly explained. Given the high flow rates of water movement, especially at discharge arrays (up to 3,000cfs at each location) we are concerned about the potential effects of scour on the bottom and on habitats immediately adjacent to discharges. We are also concerned about impacts to boater safety around pipe ends. We suggest floating booms in addition to warning signs and pilings.

B5-11

Thank you for your consideration of these comments. If you have any questions, please contact Diana Jacobs at (916) 574-1877.

Sincerely,

Dwight E. Sanders

Chief, Division of Environmental

Planning and Management

cc: Robert C. Hight
William Morrison
Jane Sekelsky
Mary Griggs
Diana Jacobs

#### **California State Lands Commission**

- **B5-1.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".
- **B5-2.** As stated in response to Comment A3-3, the governing counties, which are responsible agencies in the CEQA process, have been consulted regarding the requirements for issuing permits for sewage facilities on the Delta Wetlands Project islands. Based on these discussions, more information has been added to Mitigation Measure E-7 (see response to Comment A3-3). The 1995 DEIR/EIS analyzes the impacts of constructing recreation facilities and the need for additional sewage disposal facilities (see Chapter 3E, "Utilities and Highways"). If, when specific design details are submitted, a regulating agency determines that the NEPA and CEQA documentation already prepared for the project does not cover site-specific environmental impacts in enough detail, the agency may require additional environmental documentation before approving permits, entitlements, or alternative sewage treatment methods.

Approval of the Delta Wetlands Project recreation facilities would be conditioned specifically on implementation of Mitigation Measure E-7; if Mitigation Measure E-7 were not implemented, the recreation facilities would not be built and the impact would not occur. Therefore, no additional mitigation would be necessary if permit requirements for the county are met. See response to Comment A3-3 for more information.

**B5-3.** The Delta Protection Commission's comment letter (see comment letter B1) states: "The environmental documents prepared regarding this project do indicate that the project is located in the Primary Zone of the Delta and include the analysis required by local governments [to make required findings under the Delta Protection Act]".

As described in Chapter 3I, "Land Use and Agriculture", water storage on the Delta Wetlands Project islands is consistent with the intent of the Delta Protection Act. In response to this comment, an analysis has been completed to examine the Delta Wetlands Project's consistency with the goals of the Delta Protection Commission's Land Use and Resource Management Plan for the Primary Zone of the Delta. See response to Comment B1-1.

- **B5-4.** The boat docks at siphon and pump stations would be used to provide access for maintenance workers and equipment only. These docks would not be used for docking of recreational boats or for permanent docking, so the assessment of recreational boat use and associated impacts does not include an assessment of these boat slips. The siphon and pump stations would not generate new boat traffic. Additionally, maintenance activity would rarely coincide with peak recreational boat-use periods (e.g., summer weekends).
- **B5-5.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".

- B5-6. The potential effects of the Delta Wetlands Project on aquatic habitat, including the placement and operation of pilings, docks, and diversion and discharge facilities, are addressed by the USFWS, NMFS, and DFG biological opinions on the project. See "Alteration of Habitat" in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions". The terms of the biological opinions replace the mitigation previously identified in the 1995 DEIR/EIS. See also response to Comment B7-64 regarding predation at recreation facilities and Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities", regarding potential impacts resulting from recreation use associated with the proposed project.
- **B5-7.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".
- B5-8. Boat traffic generated by the Delta Wetlands Project is analyzed in Chapter 3L, "Traffic and Navigation". The analysis of boat traffic focuses on the effects on the Delta as a whole because the Delta Wetlands Project would affect boat traffic in a large area; however, the document recognizes that effects of boat traffic would be concentrated around the Delta Wetlands Project islands and adjacent areas. The boating activity generated by the Delta Wetlands Project would be concentrated in the vicinity of the four Delta Wetlands Project islands, as described under Impact L-7, "Increase in Boat Traffic and Congestion on Delta Waterways during Delta Wetlands Project Operation". The adverse effect that the Delta Wetlands Project would have on boating conditions both in channels adjacent to project islands and in the Delta as a whole is identified as a significant and unavoidable impact.

The California Department of Boating and Waterways provided boat registration numbers for both Contra Costa and San Joaquin Counties because formal regional boat counts are not conducted regularly in the Delta. Although boat registration figures cannot be directly linked to intensity of boat use, the number of registered boats in the Delta counties provides a relative estimate of boat use in the Delta area and project vicinity.

The methodology for analyzing boat use presented in the 1995 DEIR/EIS on the Delta Wetlands Project is consistent with the result of the analysis presented in the EIR for the Willow Berm Marina expansion use permit (County of Sacramento 1995). Sacramento County conducted a detailed study of boat use within 6 miles of the Willow Berm Marina. The Willow Berm Marina EIR estimated peak summer boat use based on information obtained from discussions with local harbor masters, sheriff patrols, and the U.S. Coast Guard (see Appendix E in the Willow Berm Marina final EIR). Based on those conversations, the county determined that approximately 50% of all boats berthed in the study area (occupied berths) could be expected to be in use on a peak summer holiday such as Labor Day. To be conservative, the county assumed that all available berths were occupied; the resulting estimate of peak boat use was 50% of the total available berths. The estimates for the Delta Wetlands Project analysis were also based on discussions with local marina operators; results of the analysis were similar to the results presented in the Willow Berm Marina EIR. The Delta Wetlands Project analysis assumed that 70% of the

available berths would be occupied and that 70% of all boats berthed would be used on a peak day; these assumptions result in peak boat use estimated at 49% of the total available berths.

The Willow Berm Marina study also evaluated peak boat densities in the adjacent channels to indicate adverse effects on boater safety and boat traffic congestion. Although a detailed boat density analysis was not done for the Delta Wetlands Project, the 1995 DEIR/EIS recognizes that implementation of the Delta Wetlands Project would "adversely affect boating safety on Delta waterways by increasing boat traffic, contributing to congestion, and adversely affecting navigation during construction". The 1995 DEIR/EIS identifies mitigation measures to reduce the impacts on safety caused by the increase in boat congestion; these measures are consistent with mitigation identified for the Willow Berm Marina project and recommended by the California Department of Boating and Waterways. See Impact L-10 and Mitigation Measure L-3 in the 1995 DEIR/EIS and refer to comment letter B2 from the California Department of Boating and Waterways for more information.

The cumulative effect of the Delta Wetlands Project on boating safety is considered significant and unavoidable. Figure 3J-1 shows the locations of existing marina facilities in the vicinity of the Delta Wetlands Project islands. The boat traffic generated by the Delta Wetlands Project combined with existing boat use from those marinas would produce a significant cumulative effect, as described in the 1995 DEIR/EIS under Impact L-23, "Cumulative Increase in Safety Problems on Delta Waterways".

A mitigation measure to reduce boat traffic has also been recommended and is described in Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".

B5-9. See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities". Delta Wetlands does not propose to provide pumpout facilities for boats because pumpout facilities are available in the vicinity of the Delta Wetlands Project islands and other locations throughout the Delta, as shown in Figure 3E-4 of Chapter 3E, "Utilities and Highways". In addition, a recreation survey published in 1997 by the Delta Protection Commission indicates that 15% of powerboat owners have pumpout toilets on their vessels (Delta Protection Commission 1997). Of these boats, houseboats are most likely to be equipped with pumpout toilets. The Delta Wetlands boat docks are expected to accommodate the same types of boats presently used throughout the Delta. Therefore, an average of 15% of boats using the Delta Wetlands facilities would be expected to require pumpout facilities. With the reduction in the number of outward boat slips located at the proposed recreation facilities (see Master Response 5) and assuming a 70% occupancy rate, the number of boats that are provided permanent docking space under the proposed project would be 400; of these, approximately 60 may require pumpout facilities. The existing sewage pumpout facilities provided by other marinas in the area are expected to be adequate to serve these boats.

**B5-10.** See responses to Comments A3-3 and B5-2 for more information regarding mitigation for sewage disposal demands.

Policy P-2 on page 11 of the Delta Protection Commission's Land Use and Resource Management Plan for the Primary Zone of the Delta states the following: "Uses which attract a substantial number of people to one area, including expansions to the Delta communities, recreational facilities, or businesses, shall provide adequate infrastructure improvements or pay to expand existing facilities, and not overburden the existing limited community resources". According to Delta Protection Commission staff, the proposed recreation facilities would be consistent with the Delta Protection Commission plan if Delta resources have been protected and the sewage disposal methods are consistent with county sewage disposal requirements and general plans for both Contra Costa and San Joaquin Counties (Aramburu pers. comm.). Additionally, the Delta Wetlands Project would not be inconsistent with Policy P-3, which is referenced by the commenter, because Delta Wetlands does not propose to add new treatment facilities within the primary zone.

Approval of the recreation facilities under the Delta Wetlands Project would be conditioned specifically on implementation of Mitigation Measure E-7, which requires that the recreation facilities meet county requirements and standards for sewage facilities; if Mitigation Measure E-7 were not implemented, the recreation facilities would not be built.

B5-11. Chapter 3B, "Hydrodynamics", of the 1995 DEIR/EIS includes a discussion of scour and its effects under "Delta Wetlands Reservoir Island Discharge Hydraulics" on page 3B-16 (see page 3B-18 in FEIS Volume 1). Each discharge pump would have a maximum exit flow rate of about 100 cfs, and the expansion chambers would reduce the maximum discharge velocity to about 3.3 fps. Additionally, Delta Wetlands would place riprap on the channel bottom at the discharge locations. Details on pump station design are provided under "Pump Units" on page 2-3 of Appendix 2, "Supplemental Description of the Delta Wetlands Project Alternatives", and Figure 2-5 in Appendix 2 illustrates the plan design for pump stations. Because the water would be discharged horizontally above the channel bottom and the channel would be protected with riprap, discharge flows would not scour the channel bottom once the pump stations are operational and fine sediment materials have been swept away.

Boater safety related to pipe ends is also discussed under "Delta Wetlands Reservoir Island Discharge Hydraulics" on page 3B-16 of the 1995 DEIR/EIS (FEIS page 3B-18). The discharge facilities would be clearly identified with pilings and guards to protect the discharge pipes. Delta Wetlands would post all warning signs and implement other safety measures, such as placement of floating booms, as necessary, under the guidance of the California Department of Boating and Waterways (see comment letter B2). The discharge velocity will decrease rapidly with increasing distance from the discharge facility, and discharges from Delta Wetlands Project islands are not likely to cause any dangerous conditions for boaters.

#### DEPARTMENT OF FISH AND GAME

1416 NINTH STREET P.O. BOX 944209 SACRAMENTO, CA 94244-2090 (916) 653-7664



December 20, 1995

Mr. Jim Sutton
California State Water Resources
Control Board
Post Office Box 2000
Sacramento, California 95812-2190

Mr. Jim Monroe U.S. Army Corps of Engineers Regulatory Branch 1325 J Street, 14th Floor Sacramento, California 95814-2922

Dear Messrs. Sutton and Monroe:

Comments on the Delta Wetlands Project Draft Environmental Impact Report/Draft Environmental Impact Statement (DEIR/DEIS) SCH 88020824 Prepared by the State Water Resources Control Board (Board) and the U.S. Army Corps of Engineers (COE), and the COE Public Notice 190109804

The California Department of Fish and Game (Department) has reviewed the Delta Wetlands Project DEIR/DEIS, prepared jointly by the Board and COE, and the COE Public Notice. The Delta Wetlands Project is a proposal by Delta Wetlands (DW) Properties to modify the land uses on four Sacramento-San Joaquin Delta islands and tracts, totaling approximately 21,000 acres; Bacon and Bouldin islands in San Joaquin County and Holland and Webb tracts in Contra Costa County. The currently proposed DW Project represents a substantial modification of a previous proposal described in a DEIR/DEIS released in 1990. DW now proposes to modify the levees and intake and drain facilities on two Delta islands, Bacon Island and Webb Tract, to act as reservoir islands. These islands would be used to store diverted surplus Delta inflows. transferred water, or banked water for later sale and/or release for Delta export or to meet water quality or flow requirements for the San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta) Estuary. The reservoir islands, totaling approximately 11,000 acres, would have a combined capacity of 238 thousand acre feet (TAF). During periods of non-storage, the reservoir islands would be managed as shallow water habitat to provide wetland habitat values incidental to the primary water storage functions of the reservoir islands. Revised water rights applications have been filed by the project proponent to allow for diversions to fill the reservoir islands.

DW also proposes to modify the current land uses on two other Delta islands, Bouldin Island and Holland Tract, to be managed as wildlife habitat pursuant to the Habitat Management Plan (HMP) contained in the DEIR/DEIS. Management of the habitat islands, totaling approximately 9,000 acres, would target the State-listed greater sandhill crane and Swainson's hawk, and wintering waterfowl, but would also benefit many other wildlife species. Water released during the course of managing the habitat islands might be sold or used for the same purposes as the water released from the reservoir islands. DW also proposes to construct recreation facilities along the perimeter of all four DW Project islands and to operate a private airstrip on Bouldin Island.

We are reviewing this document as the Public Trust Agency for fish and wildlife in the State of California and as the State fish and wildlife agency under the Fish and Wildlife Coordination Act.

The project, as presently described, avoids significant unmitigated adverse impacts to wintering waterfowl, greater sandhill cranes, Swainson's hawks, wintering and resident raptors, wintering and resident passerine birds, and populations of small mammals. However, the Department believes that the project as currently proposed will result in significant, unmitigated adverse impacts to the State- and Federally-listed winter-run chinook salmon and delta smelt as well as other resident and migratory fish in the Bay-Delta Estuary.

The DEIR/DEIS for the DW Project is generally adequate in its evaluation of significant adverse impacts to wildlife resources. It does include questionable conclusions with respect to impact significance for selected non-listed fish species, impacts associated with recreational facilities, and project-induced hydrodynamic changes that may affect berm islands, shaded riverine aquatic habitat, and shallow shoal habitat.

Operation of the DW Project may result in potential growth inducing impacts due to greater operational flexibility and water supply. Therefore, we believe the DEIR/DEIS should provide an analysis of these potential impacts in the SWP/CVP service area.

The basis of our concerns and specific recommendations to address them are presented in general comments on major sections of the report and in specific comments, annotated by page and paragraph, which are included in Appendix A (attachment). A summary of impacts to wildlife species known to occur in the project area is included in Appendix B (attachment). This summary shows that impacts to birds, mammals, reptiles, and amphibians due to the proposed project are generally offset and for several species ancillary benefits are provided by the project.

**B6-1** 

We recommend that the Board and the COE, as the lead agencies, incorporate the additional data, analyses, clarifications, and corrections we identify in this letter into the final EIR/EIS. Furthermore, consultation pursuant to the California Endangered Species Act (CESA) and the Federal Endangered Species Act (ESA) should be completed so that the biological opinions of the respective fish and wildlife agencies can be included in the final EIR/EIS.

B6-3

The deficiencies noted in our comments should be addressed and remedied in order to comply with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). To avoid jeopardizing the continued existence of several State-listed species in the project area and to minimize incidental take of those listed species as well as reduce significant impacts to other fishery resources to less-than-significant levels, the project modifications described in this letter should be incorporated in the final EIR/EIS. Furthermore, the project modifications and specific mitigation program addressing fishery and service area impacts, in combination with the HMP, should be made terms of the COE permit and the Board water right permit. The Department intends on incorporating these same requirements in its CESA 2081 Memorandum of Understanding and Management Authorization.

**B6-4** 

# GENERAL COMMENTS Habitat Management Plan

Overall the HMP contains a balanced, comprehensive program for ensuring that the DW Project avoids any significant impacts to the greater sandhill crane, Swainson's hawk, wintering waterfowl, and other wildlife resources. A beneficial component of the HMP is the continuation of farming on almost one-third of the habitat islands in corn and wheat optimally managed for wildlife. This will provide wildlife benefits and help reduce impacts on the local farming community and related businesses.

The management of Bouldin Island and Holland Tract as specified in the HMP, in conjunction with the management of Bacon Island and Webb Tract as shallow water habitat during non-storage periods, should be inextricably linked to any authorization for DW to proceed with the project. Management of the habitat islands and reservoir islands in this manner is necessary to offset impacts to wintering waterfowl such as the tundra swan.

**B6-5** 

We commend the Board and COE for fostering the completion of the HMP included as Appendix G-3 in the DEIR/DEIS. Jones and Stokes Associates staff, on behalf of the Board and COE, contributed a tremendous amount of effort and skill in assembling the HMP. DW should also be recognized for working closely and productively with the Department, other agency staff,

and non-agency waterfowl specialists to complete this plan. The Department looks forward to its oversight role as described in the HMP and intends to incorporate much of the HMP into the CESA 2081 Management Authorization for the DW Project.

B6-5 cont'd

#### **Project Description**

The Department is reviewing the DW Project in the context of the 1995 Water Quality Control Plan (WQCP) and the December 15, 1994 Principles of Agreement (Water Accord). The DEIR/DEIS presents the project from the perspective that the 1995 WQCP objectives such as export limits could be used to define diversion opportunities for projects other than the SWP and CVP. Some parties to the Water Accord, however, view those export limits as applying only to the state and federal water projects and only in the context of the operations studies that indicated to what extent and under what hydrologic conditions the predicted export ratios occurred. This viewpoint requires that the DW Project, therefore, demonstrate that the protection measures provided in the 1995 WQCP and the Water Accord are not compromised. In addition, the DW Project should be implemented in a manner that provides an incremental benefit to the Delta's fishery resources. The Department is committed to continue working with DW, the Board, and COE, to develop measures that will improve conditions in the Delta.

**B6-6** 

The DEIR/DEIS generally presents a complete and concise project description. However, the project description requires clarification on the inner-levee system of the reservoir islands and on shallow water management during periods of non-storage. An inner-levee system will be constructed on the two reservoir islands. This system will include a series of low height levees and connecting waterways to allow the management of water levels on seasonal wetlands when the reservoir islands are not being used for deep water storage. It will be designed to achieve the required water depth specifications of at least 50 percent having an average depth of 12 inches, up to 15 percent as deep as 24 inches, and no more than 35 percent dry. The inner-levees will be broad earthen structures which can also serve as roadways to assist ground transportation across the islands during dry and seasonal wetland conditions. The inner-levee system's field levees will be constructed and water control structures will be installed so that water can be managed and circulated to maintain water quality, control waterfowl disease outbreaks, and control mosquitos. These clarifications should be made in the final EIR/EIS.

### Threatened and Endangered Species and CESA Consultation

As required by CESA, the Department must issue written findings as to whether the proposed project would jeopardize the continued existence, destroy or adversely modify habitat, or result in the taking of State-listed species. The Department will make that written finding at the completion of the CESA 2081 process with the applicant and, as part of its consultation with the Board, in its Biological Opinion pursuant to Section 2090.

The Department believes that information presented on the effects of the proposed project on the State-listed threatened greater sandhill crane and Swainson's hawk, and on measures to avoid or offset these effects is sufficient to comply with CEQA and CESA. The Department also believes that the DEIR/DEIS, particularly the Hydrodynamic chapter and appendix (Chapter 3B and Appendix B-1), the Biological Assessment, and supplemental information and analyses provided to the Department gives us the necessary information to issue written findings for the State- and federally-listed winter-run chinook salmon, delta smelt, and federal candidate Sacramento splittail. We strongly recommend that this supplemental information and these analyses, along with appropriate mitigation measures acceptable to the State and federal fish and wildlife agencies, be compiled into a revised Biological Assessment and included in the final EIR/EIS. Revision of the Biological Assessment is also essential for facilitating CESA/ESA consultation.

As presently described, the proposed project may jeopardize the continued existence of the winter-run chinook salmon and delta smelt due to the direct impacts of DW project operations and indirect impacts of CVP/SWP operational changes in the Delta. Additional information should be presented on project alternatives and conservation measures which can eliminate or reduce incidental take and offset unavoidable impacts in order to avoid a jeopardy finding. The Department has been meeting frequently with DW Project proponents as well as U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) staff to address issues related to both State- and federally-listed fish species. These meetings initially focused on whether the Biological Assessment adequately characterized the project and its likely effects on special status fishery resources. These efforts have been productive and, with the capable facilitation of Jones and Stokes Associates staff, have proved useful in reaching agreement that the impact data and analytical assessment tools were adequate. Discussions of potential measures to offset adverse impacts and to provide some incremental improvement in Delta conditions for fish and wildlife are continuing. Measures such as modification of DW Project operations during periods when winter-run chinook salmon, delta smelt, or Sacramento splittail may be impacted: restrictions on other operations that could be adverse to these species, and acquisition and development of suitable shaded riverine aquatic and shallow shoal habitat to replace that lost due to the proposed project are being considered.

Pursuant to Fish and Game Code Section 2095, the Department is participating with the USFWS and the NMFS in consultation with the lead agencies and DW in an effort to develop a Biological Opinion that reflects consistent and compatible findings between the State and Federal agencies. The Department will, if possible, adopt the Federal biological opinions as the Department's written findings with respect to species listed under both CESA and ESA.

Consistent with CESA, the Department is evaluating projects in the Delta from the perspective that each project should not only offset its adverse impacts on fish and wildlife but also assist in the recovery of the Delta. The Contra Costa Water District's Los Vaqueros Project was, and the Interim South Delta Program is being evaluated in this manner. CESA compliance for the DW Project will be achieved in two steps. The Department's first step is the completion of a comprehensive 2081 Memorandum of Understanding and Management Authorization with DW which addresses listed fish and wildlife directly and cumulatively affected by the project and growth inducing impacts. Completion of the 2081 process will facilitate the Department's second step, preparation of a Biological Opinion for the Board, pursuant to Section 2090, on the Board's issuance of a water right to DW.

As you are probably aware, a petition to list spring-run chinook salmon has been submitted to the Fish and Game Commission. The Department's recommendation on whether to accept the petition must be provided to the Commission by January 17, 1996. The Commission will consider the Department's recommendation and receive public comment at the Commission meeting in March, 1996. If the Commission accepts the petition and the spring-run salmon becomes a candidate for listing, a one-year formal review period will begin. The Department will report its findings and provide a recommendation regarding listing to the Commission at the end of the review period. During the one-year review period, the spring-run chinook salmon will be afforded full protection under CESA.

## Fishery Impact Analysis and Significance Determination

The discussion of Fishery Resources (Chapter 3F) and the Biological Assessment for impacts to fish species (Appendix F-2) contains an analysis of fishery impacts that is well done, concise, and generally accurate. Jones and Stokes Associates staff, on behalf of the Board and COE, should be commended for their skillful efforts in assembling a complex array of aquatic data and issues and presenting that information in a manner that is greatly facilitating our Department's analysis of the proposed project. We do have concerns about three areas of the analysis that should be addressed in the final EIR/EIS: changes in the area of optimal salinity habitat, the entrainment risk for winter-run chinook salmon and other Sacramento River races of salmon, and the determination of impact significance.

B6-8 cont'd

#### **Optimal Salinity Habitat**

In describing project effects on optimal salinity habitat the DEIR/DEIS should consider factors such as the percentage of the area with optimal salinity that is shallow shoal habitat, the proximity to SRA habitat and tidal wetlands, and the percentage of the area that is within the influence of the SWP and CVP export facilities. All of these factors contribute to the "quality" of optimal salinity habitat. Without consideration of these factors, conclusions about net changes in this habitat can be misleading. Information on these factors and on the location of X2 should be included in the analysis. The Department believes that the project, as its operations are presently described, will result in a significant reduction in both the area and quality of optimal salinity habitat for Sacramento splittail, longfin smelt, and delta smelt. Measures to offset those impacts will be developed in the consultation currently underway.

#### **Hydrodynamic Impacts**

The DEIR/DEIS underestimates project impacts on winter-run chinook salmon. Hydrodynamic changes in the lower San Joaquin River and Three-Mile Slough can result in higher entrainment of juvenile salmon into the south Delta particularly under conditions of negative Q-West flows.

Furthermore, considering that juvenile salmon are rearing and migrating through the Delta in the late fall through spring, a larger percentage of the population is probably vulnerable to adverse project effects than is indicated because the impact analysis is based on average patterns and rates of migration through the Delta. The cumulative presence data recently provided to us by Jones and Stokes Associates should be described in the DEIR/DEIS. It will be valuable in assessing the impacts of hydrodynamic changes and formulating measures to avoid and reduce impacts to juvenile winter-run chinook salmon.

### Impact Significance

The Department understands that an iron-clad definition of significance is not always possible because significance may vary with the environmental setting. The statewide, regional, or area wide significance of the environmental setting has a large bearing on the determination of impact significance. Also, if existing impacts are already deemed significant and those impacts are increased by the project they are, by definition, also significant. In the case of the DW Project, the setting is the Sacramento-San Joaquin Delta as defined in Water Code, Section 12220. CEQA Guidelines 15206 subd. (4)(E) states that the Delta is an area of critical environmental sensitivity which is of statewide, regional, and area wide significance. The importance of the Delta to fish and wildlife resources is also recognized nationally and

internationally. In addition, Delta fish have been and are being significantly impacted by the operation of the State and Federal water projects. Therefore, the incremental impacts resulting from the DW Project must, pursuant to CEQA Guidelines, also be considered as significant.

For these reasons the Department does not concur with some of the conclusions in the final EIR/EIS which state that certain fishery impacts are less-than-significant. This is especially true for impacts to fishery resources of the Sacramento River system such as the various races of chinook salmon, as well as striped bass and American shad. Impacts should be reevaluated and suitable measures should be developed to offset those impacts. This information should be incorporated into the final EIR/EIS.

### **Aquatic Resources Mitigation**

The final EIR/EIS needs to include a comprehensive mitigation plan and post-project monitoring plan for winter-run chinook salmon, delta smelt, and other fish and wildlife as required pursuant to Assembly Bill 3180. CEQA requires that specific mitigation measures be identified (CEQA Guidelines, Section 15126). These measures must be capable of: 1) avoiding the impact altogether by not taking a certain action or parts of an action; 2) minimizing impacts by limiting the degree or magnitude of the action and its implementation; 3) rectifying the impact by repairing, rehabilitating, or restoring the impacted environment; or 4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action (CEQA Guidelines, Section 15370). A potentially acceptable approach is the development of a comprehensive Aquatic Resources Management Plan (ARMP) patterned after the HMP for the terrestrial resources affected by the DW Project. Three operational measures that could be assessed and included in the ARMP include: 1) modification of project diversions, 2) using project releases to enhance fishery resources, and 3) modification of the sequence of reservoir island releases made for export by the SWP and CVP. An example of operations under the first measure would involve the cessation of diversions onto reservoir islands by a predetermined date such as January 31. Such operations could reduce significant fishery impacts in some years while maintaining project feasibility. The second measure would involve releases of stored water in May, June, and July with SWP and CVP pumping either maintained or reduced and upstream operations remaining unchanged. This approach could provide fishery benefits if issues related to adversely increasing water temperatures could be resolved. As a third measure, the DW Project could be operated such that when larval life stages are abundant in the central Delta releases for export could be restricted to Bacon Island.

B6-9 cont'd

During recent meetings with DW a broad array of mitigation measures have been discussed. While much of the discussion and most of the challenges rest with addressing entrainment and hydrodynamic effects of the project, three other topics will also have to be addressed: increased predation, impacts on aquatic habitat related to the recreational facilities, and impacts on dissolved oxygen (DO).

#### **Predation**

Even with the implementation of avoidance measures and fish screens described in the DEIR/DEIS, salmon, delta smelt, longfin smelt, and Sacramento splittail will be lost during project filling and subsequent release for export. Increased predation is expected to occur at intake and drain stations and recreational boat dock structures. The Department will work closely with DW to evaluate how these unmitigated fish losses may be offset by measures such as screening other non-project diversions.

**B6-10** 

### **Aquatic Habitat**

The DEIR/DEIS states that a five percent increase in annual boater use-days is expected at project build out (page 3J-14). The increased erosion due to the higher number of boats in the Delta will damage SRA habitat throughout the Delta. In addition, reservoir island discharges may increase channel velocities and erode channel islands on the northeast side of Franks Tract and in Santa Fe Cut.

Mitigation of SRA habitat can be accomplished using specifications provided by the Department and USFWS to offset anticipated erosion impacts in Franks Tract and Santa Fe Cut and to partially offset Delta-wide erosion impacts. In addition, the Board may wish to require an endowment or annual contribution to a fund based on the volume of water diverted, to be administered by the Department for the development and long-term maintenance of SRA, riparian, and shallow shoal habitat throughout the Delta. DW's mitigation measures could be carried out in combination with other programs that are currently underway (e.g. SB-34, Category III, etc.) to enhance the value of these measures to fishery resources.

**B6-11** 

### Dissolved Oxygen

DO levels below 6.0 mg/l can interfere with the movement of fish such as adult salmon. At no time should releases be made if reservoir water has DO levels < 6.0 mg/l. Monitoring of DO levels should be the responsibility of DW and should be included as a permit condition.

The Department will continue to work with DW and the lead agencies to develop appropriate measures for a comprehensive aquatic resources mitigation plan. The dialogue among DW and the state and federal fish and wildlife agencies has helped to begin to define the key components of this plan. We encourage all the parties to continue to work closely with our intra-Department aquatic resources team as this process continues.

### **Potential Operational Changes**

In general, fish and wildlife resources may be affected by changes in upstream reservoir operations and export patterns resulting from purchase of DW water and from water transfers or water banking involving DW. The DEIR/DEIS briefly discusses the potential for the Department of Water Resources (DWR) and the U.S. Bureau of Reclamation (USBR) to modify their operations in response to the proposed project. Export pumping of DW water supplies by the SWP and CVP could allow greater flexibility for operation of upstream reservoirs. This flexibility could affect fishery resources in a variety of ways, both positive and negative, depending on how it is used. Recent discussions have centered on the need to evaluate CVP and SWP operational changes and potential impacts either now or at some point in the future when DW is coordinated with or purchased by the SWP, CVP, or other entity.

Board staff have emphasized that DW, or any subsequent owner/operator would be required to operate the project under permit conditions imposed by the regulatory agencies. Any changes in project operations beyond the scope of the permitted project would require an amended water right and be subject to additional CEQA documentation. The USFWS has also stated that its current Biological Opinion for the SWP and CVP is for a given set of facilities and operations and if there is a significant change, such as the purchase and operation of the DW Project in conjunction with existing facilities, re-consultation would be required. At a minimum, the COE permit and the Board water right permit should include terms and conditions that require a supplemental EIR/EIS and re-consultation with the fish and wildlife agencies if the DW Project is acquired by DWR, the USBR or other entity, or if the DW Project is operated in conjunction with those entities.

The Department is also concerned about potential direct and secondary impacts of the DW Project related to water transfers. The DEIR/DEIS does not evaluate DW operations for water transfers and water banking. Some, but not all, transfers or banking transactions involving DW will require Board approval and only some of those will be reviewed under CEQA. We recommend that the discussion of how this EIR/EIS would be used (Page 1-2) be expanded to articulate the Board's review and approval responsibilities related to the type of

**B6-13** 

water transfers and banking transactions in which DW is likely to participate. We are interested in an assessment of the percentage of potentially transferable water that would come under the Board's purview as an indicator of the potential extent of transfers involving DW that could occur without further environmental review.

B6-14 cont'd

#### **Recreation Facilities**

The DW Project includes 38 recreational facilities each having a 30-berth boat dock. Approximately 18 acres of shallow water habitat would be covered by these docks and the docks associated with the siphon and pump stations. The marina component of the DW Project will result in the take (by killing and harassment) of delta smelt. Placement of docking structures into and over the water shades submersed aquatic plants, decreasing their growth and productivity, thus decreasing spawning substrates and hiding cover for delta smelt. Predatory fish are attracted to structures which will thus increase direct losses of delta smelt due to predation. Maintenance dredging involves the routine removal of submerged rocks and branches which further decreases spawning areas and hiding cover for delta smelt. Increased boat traffic with resulting fuel and oil spills, increased noise and turbulence and the potential for higher loading of toxic chemicals into the Bay-Delta Estuary from anti-fouling boat paints may result in additional take of the species.

**B6-15** 

The Department believes that the boat docks associated with the recreation facilities represent a significant, avoidable impact. The DEIR/DEIS describes the environmental effects of constructing generic dock facilities without specific information on site characterisites. We believe that permits for dock facilities should be based on site-specific analyses including consideration of alternative locations to reduce or avoid impacts. Authorizing construction of 38 marina facilities in the permit for the DW project precludes any site specific evaluation. For this reason, we recommend the COE consider permitting a limited number of dock facilities now and require new permits to construct more facilities in the future. Alternatively, we suggest the COE consider consolidation and reduction of the dock facilities that are proposed. In the Department's view, these dock complexes are not a project feature integral to the project purpose in that the islands can serve the project purpose as defined in Chapter 2 without the need to develop dockage facilities for up to 1,140 boats.

**B6-16** 

Figure 1 in Chapter 2 shows the location of the 13 existing marinas in the project area. Furthermore, as pointed out in Chapter 3J, over 100 commercial marinas exist in the Delta, many in close proximity to the project islands (Figure 3J-1) and with sufficient space to accommodate DW boat recreationists. Sufficient roads exist to provide access to the recreational facilities depicted in Chapter 3J and Appendix 2.

The proposed recreational facilities located along the levees on the eastern one-third of Bouldin Island could also adversely affect current use of this area by sandhill cranes. DW should consider relocating these facilities.

#### B6-17

#### **External Levees**

The DEIR/DEIS does not adequately characterize issues related to reconstruction or maintenance of the levees. The final EIR/EIS should note that riparian, fisheries, and wildlife habitats were adversely impacted on DW Project islands under the SB 34 program in the period 1987-1991 but that all shrub-scrub, freshwater marsh, and riparian forest impacts, including anticipated future impacts, were mitigated off-site at Medford Island. Mitigation for the loss of approximately 9,000 feet of SRA habitat is still needed and opportunities to address this need within a larger-scale habitat restoration program should be considered as part of the DW Project.

#### **Berm Islands**

Various sections of the DEIR/DEIS discuss the DW Project's effects on hydrodynamics, vegetation, and wildlife on the interior and along the water-side of the levees of the four project islands. However, the DEIR/DEIS does not adequately discuss the effects on in-stream channel islands or berms that surround the project islands.

Channel islands and berms provide habitat for a high diversity of endemic plants and animals and are remnants of what was once a dominant habitat in the Delta. Berm islands are subjected to a number of forces that are diminishing their habitat quality and quantity. Peat mining, wave wash from passing boats, and scour from increased water velocities all contribute to the erosion and habitat degradation of those islands.

**B6-18** 

The DEIR/DEIS (page 3B-5) states that "Diversion and export pumping can also increase channel velocities". The proposed recreation facilities have the potential to significantly increase the number of boaters and wave wash affecting the surrounding channels. Increased in-channel water velocities and recreational boaters could significantly impact berm islands and decrease habitat for sensitive species. The potential for these significant impacts has not been adequately addressed in the DEIR/DEIS.

B6-19 cont'd

The final EIR/EIS should include a discussion of these impacts along with suitable mitigation measures. This should include the berm islands surrounding the four project islands as well as berm islands located in other Delta channels that could be affected by the proposed project.

#### **Growth-Inducing Impacts**

The final EIR/EIS should refer to the DWR's status report titled "Procedure for Estimating the Environmental Impacts of Increasing Water Deliveries to State Water Project Service Areas" as modified by the Department's comments dated June 23, 1995. The purpose of the Service Area Impact Study is to describe a process for evaluating the potential environmental impacts of additional SWP supplies within the SWP service areas through the year 2020, including both direct and indirect effects to fish and wildlife habitat. These methods should be adapted to evaluate the DW Project with close involvement by state and federal fish and wildlife agencies.

**B6-20** 

The DEIR/DEIS should describe a process for preparation of mitigation plans or regional multi-species plans and implementation of recommended mitigation measures to offset growth-inducing impacts. These plans should further the goals of the CESA and should describe for instance, acquisition of sensitive habitats and key movement corridors in the project service area for listed and candidate species. The Department is prepared to work closely with DW to develop an approach which reduces growth-inducing impacts to less-than-significant levels.

#### **Public Recreation Access**

The DEIR/DEIS accurately describes the fact that there is a significant shortage of public recreational opportunities in the Delta, particularly for activities such as nature study, photography, wildlife viewing, and hunting (Chapter 3J). A subject of great importance to the Department is exploring the potential for including public recreation as a part of the proposed project. A public recreation component would provide important opportunities for public recreation in the Delta, a location where such opportunities are in critically short supply while demand for those opportunities is extremely high.

In a March 2, 1994 letter to the Board and the COE, DW stated that providing for public recreation could be an important feature of the Project. Provisions for public hunting on 1,200 acres on Holland Tract and 5,000 acres on Bacon Island were described in that letter. The Department welcomes further discussions among the State and federal lead agencies and the DW Project to pursue opportunities regarding public access.

B6-21 cont'd

**B6-22** 

Closely regulated activities such as hiking, nature study, photography, wildlife observation, and hunting could be provided in a manner that does not interfere with the management of these islands. Public hunting would be conducted under the limitations described in the HMP and would be compatible with activities in the private recreation areas.

#### **Environmental Resource Fund**

We are encouraged by DW's offer to contribute \$2 for each acre-foot of water sold for Delta export to fund ecological research in the Bay-Delta Estuary consistent with the CALFED Bay-Delta Program. We have a few suggestions to enhance this feature of the Project. First, the appropriateness of the \$2 per acre-foot contribution needs to be analyzed with reference to ecological research needs in the Bay-Delta Estuary. Second, DW should evaluate a mechanism for adjusting the contribution for inflation. Third, consideration should be given to partitioning the fund to cover wildlife and fishery related research separately. Lastly, a neutral third party "Grants Committee" should be formed to make the final selection of approved projects and designate funding levels.

### Recommended Corps Permit and Water Right Conditions

This letter describes the various concerns that the Department has regarding the proposed project. We have recommended several approaches to avoid or reduce adverse impacts and have also described specific mitigation measures. The Department will continue to work with the COE and the Board staff to resolve outstanding issues and define measures necessary to protect fish and wildlife that can be included as terms and conditions within the COE permit and Board water right permit for the DW project. These terms and conditions must be binding upon anyone who would purchase and operate the DW Project in the future. If the reservoir portion of the project is subsequently transferred or sold, all of the protective measures for fish and wildlife must continue, including implementation of the ARMP, HMP, Management Agreements and Biological Opinions.

#### Summary

The DEIR/DEIS, in general, analyzes the proposed action using appropriate analytical techniques that are based on sound technical data and assumptions. However, as we have described above, we believe the DEIR/DEIS does not properly identify all significant impacts to fish and wildlife and does not include adequate mitigation for those impacts. We recognize fully the effort put forth in bringing this DEIR/DEIS to this point and appreciate the opportunity to participate in the development of the HMP and provide advice in the early stages of preparing the DEIR/DEIS. When the recommended revisions described in this letter and enclosed appendices are made, we believe the DEIR/DEIS will comply with State and Federal law. We are willing to participate in making any necessary modifications and look forward to fulfilling our obligation under AB 3180 to assist with the development of an adequate mitigation and monitoring plan.

Thank you for the opportunity to provide these comments. If you have any questions or need additional information, please contact Mr. Frank Wernette, Bay-Delta and Special Water Projects Division, 4001 North Wilson Way, Stockton, California 95205, (209) 948-7800.

Sincerely,

C. F. Raysbrook Interim Director

Attachments

cc: See next page.

cc: Mr. Wayne White
U.S. Fish and Wildlife Service
Sacramento, California

Ms. Hilda Diaz-Soltero, Regional Director National Marine Fisheries Service Long Beach, California

Ms. Cynthia Chadwick Environmental Protection Agency San Francisco, California

The Resources Agency Sacramento, California

Mr. Robert Potter California Dept. of Water Resources Sacramento, California

## APPENDIX A

Appendix to Department of Fish and Game Comment Letter on the Proposed Delta Wetlands (DW) Project DEIR/DEIS

Specific Comments

#### SPECIFIC COMMENTS

### Chapter 2: Delta Wetlands Project Alternatives

The proposed project provides for the management of shallow water on the reservoir islands during periods of non-storage using an inner levee system on the reservoir islands. Shallow water management should not be optional as described in this section. When the Department evaluated the suitability of the habitat islands as adequate compensation for the loss of wintering waterfowl habitat on the reservoir islands we assumed that shallow water management would be implemented on the reservoir islands. DW or its successors should be required to operate the reservoir islands as described on page 2-4 of Appendix 2. While DW is not held to any, specific requirements for the frequency of shallow water management the development of the inner levee system and management of shallow water habitat during periods when the reservoirs are not flooded under partial or full storage operation is, by definition, part of the project, and is therefore, required by DW.

**B6-24** 

### Chapter 3A: Water Supply and Water Project Operations

### Page 3A-5, Delta Water Project Operations:

This section states that DW Project operations will likely influence upstream reservoir storage if either the SWP or CVP buy and export DW water as a replacement for reservoir releases. Any related modifications of SWP or CVP operations could result in a reconsultation of the current OCAP opinion.

### **B6-25**

### Page 3A-12, Upstream Reservoir Storage:

The text needs to describe in more detail how rediversion will affect existing water right permits for the SWP and CVP and compliance with the 1995 WQCP and USFWS and NMFS biological opinions. At least one concern relates to the potential negative effects on instream flows below reservoirs.

#### **B6-26**

#### Chapter 3B: Hydrodynamics

#### Page 3B-1:

It is not clear how water banking or water transfers will be carried out without close coordination with SWP and CVP export facilities. Coordinated operations of the DW Project with the SWP and CVP could be optimized to improve fishery resources.

### Page 3B-8:

A hydrodynamic simulation of the DW Project that does not include installation of the temporary agricultural barriers may not be sufficient to fully assess fishery impacts. The final EIR/EIS should include a model simulation with the three agricultural barriers in place.

**B6-28** 

### Pages 3B-17 and 18, Impacts B-1 and 2:

The Department does not concur with the assessment that local hydrodynamic effects are not significant and require no mitigation. In our view, these hydrodynamic changes risk significant impacts to important shallow shoal and SRA habitat. Compensation areas should be provided to offset these losses.

**B6-29** 

### Chapter 3C: Water Quality

The Department's concerns are principally related to impacts on water temperature, dissolved oxygen (DO) levels, and salinity as indicated by the location of X2 and the area of optimal salinity habitat for fish. At a minimum, the Board and COE should incorporate the mitigation measures described in this chapter as terms and conditions of their respective permits. Additional measures that are necessary to offset adverse impacts to fishery resources are currently being developed during CESA and ESA consultation meetings.

**B6-30** 

### Chapter 3-D: Flood Control

### Page 3D-15, Impact D-4:

The Department does not concur with the finding that levee toe erosion and erosion of nearby vegetated berms would not increase with the DW Project. Specific compensation measures should be described to replace habitat impacted by project operations.

B6-31

### Chapter 3E: Utilities and Highways

#### Page 3E-3:

Construction of transmission lines to provide electricity to recreation facilities on the western one-third of Bouldin Island, the northern half of Holland Tract, and Webb Tract will likely increase the mortality of waterfowl due to increased bird strikes. The development of nesting habitat described in the HMP will offset this impact. Therefore, creation and management of nesting habitat for waterfowl, including brood ponds, should be mandatory.

#### Chapter 3F: Fishery Resources

### Page 3F-5, Factors Affecting Abundance:

Little evidence is available which implicates discharge of toxic materials as a primary factor influencing young striped bass abundance in the Delta. Measures to offset the incremental entrainment of eggs, larvae, and juveniles as a result of the DW Project should be the focus of discussion.

**B6-33** 

### Page 3F-10, right column, second paragraph:

This section explains that Delta SOS simulations cannot encompass all permutations that could occur such as operational decisions at the discretion of DW, DWR, USBR, or the Board. It is not clear what operational decisions are at the Board's discretion or how the magnitude of potential adverse effects of the proposed project can be accurately assessed considering this operational uncertainty. The Department believes that those potential operational criteria should be carefully described. Without a clearer view of the project and its operation, it will be extremely difficult to evaluate the project and render an opinion under the CESA.

B6-34

### Page 3F-10, right column, last paragraph:

This section states that the intensive agriculture alternative (no-project alternative) was used as the base for comparing other project alternatives. Intensive agriculture is the alternative that will be implemented if project approval is denied rather than the existing condition. Table 2-2 in Chapter 2 indicates that the no-project alternative has an annual water budget of twice the existing condition. The use of that alternative as the base will tend to over-value any reduction in diversions associated with reducing or eliminating farming and may slightly underestimate adverse project impacts.

B6-35

### Page 3F-12, Estuarine Habitat Area:

It is not clear that the methods described to assess project impacts to habitat area based on optimal salinity range calculations accurately assesses project impacts on estuarine habitat. Particularly problematic are the weighting strategies and the fact that optimum rearing habitat, i.e. shallow shoal habitat, is scarcer further upstream in the Delta. This is particularly true for delta smelt.

B6-36

### Page 3F-15, Mitigation Measure F-1, Fish Habitat Management:

Areas that are dredged or covered by fill or boat docks should be replaced at 3:1. For instance, the cumulative area affected by the proposed covered dock complexes associated with the recreation facilities is nearly 18 acres. The DW Project should, in coordination with the State and federal fish and wildlife agencies, identify specific restoration strategies including areas where replacement habitat can be restored.

Mitigation should not be limited to shallow vegetated habitat but should also include shallow should habitat, vegetated or not. This habitat is defined as any area less than 3 meters MHW.

### Page 3F-16, left column, first paragraph:

DW should consult with the Department relative to the timing of in-water construction and maintenance activities. The Department will base its recommendations on guidelines developed for the protection of delta smelt in the draft report titled "Mitigation for Impacts of In-Channel Modification Projects to the Delta Smelt (Hypomesus transpacificus) in the Sacramento-San Joaquin Estuary." DW should also be aware of Department guidelines governing activities that could impact winter-run chinook salmon. The COE and Board should make conformance with these guidelines conditions of DW's permits.

### Page 3F-16, left column, last paragraph, Dissolved Oxygen:

The Department does not concur with the conclusion presented that DO levels will not be a concern with the project and recommends that a specific mitigation measure be developed to address this concern. We will present our specific recommendations during our ongoing CESA and ESA consultation meetings.

### Page 3F-17, Mitigation Measure F-2, Temperature:

The Department does not believe this mitigation measure will reduce impacts to a less-than-significant level. The Department is currently working with DW and the lead agencies' consultants to develop an acceptable measure.

### Page 3F-17 to 18, Effects on Outflow and Salinity:

The DEIR/DEIS states that during February-June X2 is shifted upstream up to 1.4 km and during September-November X2 can shift upstream over 3.5 km. The document needs to describe antecedent conditions immediately prior to the February-June period. Potential impacts associated with this shift and adequate mitigation measures need to be described in the final EIR/EIS.

#### Page 3F-20:

Reduced Sacramento River flows should be included in the list of major concerns about chinook salmon when DW discharges are exported during April-June.

### Page 3F-20, column 2, paragraph 2:

The effect of reduced Sacramento River flow (due to export of DW discharge) on the salmon mortality index should be disclosed in the final EIR/EIS.

B6-37 cont'd

B6-38

B6-39

### Page 3F-21, Optimal Salinity Habitat:

Changes in optimal salinity habitat are described as being small, but do not take into consideration the risk of additional entrainment. Much of the habitat for delta smelt and striped bass is within the influence of the SWP and CVP export pumps, and now additional sources of entrainment are being added, expanding the risk of entrainment. Obviously this is not all "optimal habitat" when the increased risk of entrainment is considered. Striped bass may have a better chance for survival downstream of their optimal salinity range than within it if they are more vulnerable to the export diversions. The decrease in entrainment of larval striped bass and increase in optimal salinity under Alternative 1 is probably overestimated because this alternative is compared to a scenario of intensive agriculture rather than existing conditions.

**B6-41** 

### Page 3F-21, right column, paragraph 3, Striped Bass Transport:

It is inaccurate to infer eggs and larvae produced in the San Joaquin River are less likely to be entrained since very little of the San Joaquin River is downstream of the central Delta. Eggs and larvae produced in the lower San Joaquin River can be subjected to the same levels of entrainment because they can eventually be transported to the central Delta.

**B6-42** 

### Page 3F-22, left column:

The text should state that there is also significant entrainment of American shad from August-October. Many American shad enter the central Delta as evidenced by the millions of individuals salvaged at the SWP and CVP.

**B6-43** 

### Page 3F-23, right column, last paragraph, Optimal Salinity Habitat:

The assumptions and calculations that conclude that there is a net increase in optimal salinity habitat for delta smelt are not consistent with the data in Table 5-5 of Appendix F-2 which shows an upstream shift of X-2. The extent of decreases in Delta outflow are likely to result in significant reductions in optimal salinity habitat.

**B6-44** 

### Page 3F-23, right column, Longfin Smelt Transport:

It is true that longfin smelt spawn primarily in the Sacramento River; in the confluence area; and, in Suisun Bay when salinity conditions are favorable. In high outflow years, entrainment is not a problem because buoyant pelagic larvae hatch low in the system and are transported out of the influence of the pumps. However, during low flow years when longfin spawn higher in the system DW pumping during February (peak larval abundance) will result in a new source of entrainment.

B6-45

### Page 3F-23, right column, last paragraph:

The 5.6 percent increase in entrainment of longfin smelt is a concern. Winter

diversions (especially January-March) act as a double negative. During low outflow years, longfin spawning habitat shifts into the Delta and areas upstream of the Delta, resulting in increased entrainment of migrating adults. Larvae are subsequently vulnerable to entrainment as they pass through the Delta or use it as rearing habitat. In years of low Delta outflow transport flows out of the Delta are decreased and there is less rearing habitat. Increasing exports during the January to March period in a series of dry or critical years could reduce longfin smelt abundance to critically low levels such that the population may not rebound. An additional 9,000 cfs being drawn toward Webb Tract and Bacon Island is of particular concern since the 1995 WQCP allows a high diversion rate in January and in February in some years. The DW Project will increase the probability of attaining the maximum allowable exports under the 1995 WQCP. The DEIR/DEIS does not contain adequate mitigation measures to reduce impacts to longfin smelt larvae, particularly in February.

B6-45 cont'd

DW Project operations could affect splittail spawning habitat upstream to the extent that reservoir releases are reduced when DW discharges are being exported.

B6-46

### Page 3F-24, Impact F-4:

Based on information in the DEIR/DEIS, such as life history data for chinook salmon shown in Figure 3F-1, the conclusion that the DW Project would not adversely impact Sacramento River races of chinook salmon can not be supported. For instance, the spring-run is now being considered for listing under CESA and is vulnerable to a similar extent as winter-run. In the Department's view, impacts to all races and runs of chinook salmon are significant and mitigation measures to offset those impacts will need to be developed. The Department will continue to work with DW and the lead agencies to address fishery impact concerns for both listed and non-listed species.

Adverse impacts to Sacramento River fish including chinook salmon, delta smelt, and striped bass will occur due to increased entrainment at the Delta Cross Channel and Georgiana Slough. Adverse impacts to those species are also expected due to a 19 percent increase in net channel flows in Three-Mile Slough toward the central Delta from the Sacramento River (Table B1-7). Flows in the San Joaquin River, measured near Jersey Island, changed from 20,109 cfs to 14,354 cfs, a change of 5,755 cfs. These hydrodynamic changes are expected to pose considerable risks to Sacramento River fish.

**B6-47** 

An increase in flows south and west from the San Joaquin River in the vicinity of the mouth of Old River and Middle River at Columbia Cut subjects San Joaquin fall-run

chinook salmon to unfavorable conditions. Increases in reverse flows were 23 percent and 47 percent respectively.

### Page 3F-24, Mitigation Measure F-3:

The portion of this measure that restricts diversions to fill reservoir islands is a

reasonable, first step at addressing impacts to salmon in the April through June period. Further restrictions on diversions are necessary to avoid the peak outmigration of winter-run and spring-run salmon. The other component of this measure related to the CDFP is probably not adequate to protect San Joaquin fall-run salmon considering the data displayed in Table B1-8 in Appendix B-1. The CDFP reflects the fate of particles released in the Mokelumne River box of the transport model (Figure 1 of Appendix A of Appendix F2). Water released from storage and rediverted by the SWP or CVP is not likely to significantly change channel flows in that portion of the Delta represented by the Mokelumne River box even though significant hydrodynamic changes could occur in the central Delta and south Delta. Under low flow conditions in the San Joaquin River, DW Project diversions can change a positive base flow to a negative flow.

Based on the Summary of Typical Net Delta Channel Flows (Table B1-8), for DW discharges of 6,000 cfs, these flows changed as follows:

Location	RMA Mode No.	% Increase in Flows Toward Export Facilities
Middle River at Columbia Cut	159	16% increase
Middle River at Victoria Cut	135	212% increase
Old River North of Clifton Court	83	221% increase
Head of Old River	54	34% increase

# Page 3F-25, Adaptive Measures:

Once specific management and operational measures are established, adaptive measures may be used to provide additional benefits. Realistically it may not be possible to use real time monitoring for winter-run or spring-run chinook salmon. More consideration could be given to an adaptive management plan. There needs to be further development of appropriate evaluation criteria. The final EIR/EIS should elaborate on its description of these measures.

# Page 3F-25, Mitigation Measure F-4:

This measure fails to be sufficiently protective of egg and larval stages of striped bass, delta smelt, longfin smelt, and American shad. Figure 3F-3 further illustrates why this measure is not adequate since diversions are not restricted during particularly critical times for these species.

B6-47 cont'd

#### Page 3F-26, DW Operations Objectives:

The DEIR/DEIS should elaborate on its discussion of how the DW Project can be integrated into the CALFED Ops group process.

**B6-49** 

#### Page 3F-26, Impact F-6:

The Department does not agree with the conclusion that the changes in the area of optimal salinity habitat is a less-than-significant impact. DW should include specific mitigation measures to address this impact. Outflow and habitat reductions will outweigh any increase due to foregone agricultural diversions. Mitigation could be in the form of restoration of shallow water habitat, for example on Prospect Island.

**B6-50** 

#### Page 3F-27, Mitigation Measure F-5:

When X2 is near Collinsville, striped bass and delta smelt will be in the Delta and vulnerable to entrainment. This measure may not really "minimize" entrainment losses. Allowing diversions to occur only when X2 is downstream of Chipps Island would probably be a better measure to "minimize" losses. The Department will continue to work with DW to improve the effectiveness of this measure.

**B6-51** 

#### Page 3F-27, Impact F-8:

The Department does not agree with the conclusion reached in the DEIR/DEIS that screening the project's intakes will reduce the impact of entrainment losses of juvenile American shad and other species to less-than-significant levels. The Department will continue to work with DW to develop adequate compensation measures, particularly for increased indirect impacts.

Page 3F-28:

The Department's comments on Alternative 1 apply to Alternative 2 as well.

**B6-52** 

# Page 3F-28 and 30, Impacts of Alternatives 2 and 3:

Keep in mind that evaluations of the effects of the 1995 WQCP are not based on the standards. They are based on the conditions estimated by operations studies with the projects operating to the standards. Impacts occur even though standards may be met; therefore, from a fishery perspective, the flows are not surplus.

**B6-53** 

# Page 3F-35, Cumulative Impacts:

If the Department's comments on Alternative 1 are adequately addressed in a comprehensive mitigation plan, no significant cumulative impacts will likely occur. However, as presented in the DEIR/DEIS, these cumulative impacts are not reduced to less-than-significant levels.

#### Chapter 3H: Wildlife

#### Page 3H-11:

The HEP team used the white-fronted goose as an initial indicator to help craft the HMP. However, the Department reassessed performance of the HMP for all of the waterfowl evaluation species. For the tundra swan for instance, the HMP continued to perform well and in conjunction with management of shallow water habitat on the reservoir islands during non-storage periods, impacts to this species were also offset.

**B6-55** 

#### Page 3H-14:

Reference to a shallow storage condition without an inner levee system should be deleted since the inner levee system is, by definition part of the project description. Furthermore, shallow water wetland management is not at DW's discretion and should be included as a term and condition of the COE permit and water right permit. Shallow water management is necessary to offset impacts to the tundra swan and to ensure proper management to alleviate avian botulism concerns.

**B6-56** 

## Page 3H-21, Impact H-2:

Reference to management of the reservoir islands with an inner levee system should be clarified.

R6-57

#### Chapter 3J

# Page 3J-13, right column, paragraph 1:

The DEIR/DEIS states that 798 boats could be provided with permanent dockage, yet up to 1,140 are possible. The basis for the calculation in the DEIR/DEIS should be provided.

**B6-58** 

#### Appendix 1

The Department previously protested the original applications filed with the Board on July 9, 1987. Although those original applications have been amended and additional permits were applied for on July 21, 1993 and November 24, 1994, the Department's original protest remains. It can be withdrawn when the recommended mitigation and compensation measures that are presented in this comment letter are incorporated as permit terms and conditions.

#### Appendix 2

#### Page 2-2, Fish Screening:

The text needs to describe features of the fish screens in greater detail before their adequacy can be determined. The Department is willing to work with DW to ensure that the fish screens will meet applicable screen criteria and adequately protect fishery resources. We are concerned about the adequacy of the manual cleaning methods that are proposed. It isn't clear from examining the sketches how the screens would be raised for cleaning. It is also unclear whether DW will cease diversion during manual cleaning when screen modules may not be operable. The screens need to be designed to meet the 0.2 feet per second approach velocity criteria currently being used by the USFWS. DW needs to develop a protocol for assessing compliance with these criteria and include remedial actions if compliance is not achieved. DW should also develop a screen maintenance plan.

B6-60

#### Appendix F2

#### Appendix B, Table 2:

The text states that this table depicts San Joaquin inflow under the no-project alternative, but instead is a duplicate of total Delta inflow (Table 3). The corrected table should be provided in the final EIR/EIS and in the revised Biological Assessment requested in the general comments portion of this letter.

**B6-61** 

#### Appendix B1

Various figures and tables in this section indicate that diversions for storage can cause significant flow changes in Three-Mile Slough and the Lower San Joaquin River near Antioch. Increased flows caused by diversions for storage pose a significant threat to Sacramento River salmon and other special status species.

**B6-62** 

#### Appendix G2

#### Page G2-1:

In the first full paragraph of the right column, the DEIR/DEIS describes an array of reservoir flooding scenarios that may be used by DW to maximize foraging habitat for waterfowl when the islands are managed as shallow water wetlands. While increased benefits to waterfowl are a key feature of the DW Project it is essential that impacts to fishery resources are fully offset through avoidance and mitigation measures.

#### Page G2-2, fifth bullet:

This assumption should be modified to include the "shallow storage condition along with the non-storage condition when calculating the 60 consecutive days. The management of shallow-water wetland using the inner levee infrastructure required as part of the project should not be optional as implied in this section.

**B6-64** 

#### Page G2-3, right column, paragraph 3:

This paragraph states that water volumes would be the same as for shallow water wetlands, but that no inner levee system would be constructed. This is misleading since the inner levee system is, by definition, part of the proposed project. The final EIR/EIS should clarify the definition of shallow-water storage consistent with DW's proposed project.

**B6-65** 

# Appendix G3: HMP

# Page 16, Monitoring Schedule:

The final EIR/EIS should clarify how monitoring years are designated with regards to monitoring during construction.

**B6-66** 

Figures 2 and 4: These figures in the HMP indicate that the so-called Florida tip area in the southeastern tip of Bouldin Island and the eastern half of the area north of Highway 12, which are significant areas used by sandhill cranes, will be converted to a mixture of emergent wetlands and mixed agriculture/seasonal wetland. These areas are also depicted in the HMP as "Free Roam Hunting". Monitoring of crane use in these areas should be conducted to document any changes in use following implementation of the HMP. The level of crane use with the HMP should be at least as high as the current combined use on Bouldin Island and Webb Tract prior to project implementation.

B6-67

#### Appendix G5

# Page G5-9, Willow Scrub:

Excavation will be required to create the elevation and hydraulic conditions necessary to maintain strips of willow scrub adjacent to the hunting closed zone.

**B6-68** 

#### Page G5-10, Freshwater Marsh:

We do not recommend using cattail plugs as part of the development strategy.

#### Appendix H2

#### Page H2-13:

Results of surveys for sensitive species of wildlife on project islands have underestimated the value of these islands to wildlife. Surveys on Webb Tract have recorded only 1 sandhill crane and no Swainson's hawk. The DEIR/DEIS (Page 3H-8 to 3H-9) contains some updated information, but the overall description of Webb Tract's habitat value for sensitive species is still understated. Recent information gathered by the Department's Region II during aerial overflights of Webb Tract conducted in winters 1993/94 and 1994/95, revealed 20 to 50 sandhill cranes were foraging on Webb Tract on a regular basis. Similarly, Swainson's hawks have been observed foraging on Webb Tract by the Department during routine avian cholera abatement activities.

# APPENDIX B

Appendix to Department of Fish and Game Comment Letter on the Proposed Delta Wetlands (DW) Project DEIR/DEIS

B6-71

Wildlife
Species List
Benefits/Impacts
Summary

# Delta Wetlands Project Status of Compensation for Wildlife Species of the Bay-Delta Estuary Due to the Implementation of the Delta Wetlands Project 11

SPECIES	Species Fully Mitigated	Species Less Than Fully Mitigated 2/	Species Provided Ancillary Benefits
BIRDS			
Eared Grebe	X		×
Western Grebe	X		X
Pied-billed Grebe	X		X
White Pelican	X		X
Double-crested Cormorant	X		
Great Blue Heron	X		
Green Heron	· · · X		
Cattle Egret	X		
Great Egret	X		·
Snowy Egret	X		
Black-crowned Night Heron	X		
Least Bittern	X		
American Bittern	X		X
Tundra Swan	X		".
Canada Goose	X		
White-fronted Goose	. X		
Snow Goose	X		
Ross' Goose	X		
Mallard	X		

<sup>1/</sup> Assumes prefered project as proposed. September, 1995 with Holland Tract and Bouldin Island management using multi-species management following the adoption of the HMP and reservoir islands managed as shallow water wetlands during non-storage periods.

Note: Special status species such as federal or state listed or candidate and species of special concern in bold.

<sup>2/</sup> Remaining impacts are judged to be less-than-significant.

SPECIES	Species Fully Mitigated	Species Less Than Fully Mitigated 2/	Species Provided Ancillary Benefits
Gadwall	х		
Northern Pintail	X -		
Green-winged Teal	x		
Blue-winged Teal	x		
Cinnamon Teal	x		
American Wigeon	х		
Northern Shoveler	х		¥
Wood Duck	X	,	X
Redhead	X		
Ring-necked Duck	X		
Canvasback	X		
Lesser Scaup	X		
Common Goldeneye	X		
Bufflehead	X		
Ruddy Duck	X		
Common Merganser	X		
Turkey Vulture	X		
Black-shouldered Kite	X		X
Sharp-shinned Hawk	X		x
Cooper's Hawk	X		X
Red-tailed Hawk	Χ ,		
Red-shouldered Hawk	X		X
Swainson's Hawk	X		
Rough-legged Hawk	X		
Ferruginous Hawk	X		
Golden Eagle	X		-
Bald Eagle	X		
Northern Harrier	X		
Prairie Falcon	X		
Peregrine Falcon	Χ.		

SPECIES	Species Fully Mitigated	Species Less Than Fully Mitigated 2/	Species Provided Ancillary Benefits
Merlin	X		
American Kestrel		X	
California Quail	X		X
Ring-necked Pheasant		Х	
Sandhill Crane	Х		
Virginia rail	Х		Ϋ́
Sora rail	Χ .		Х
Black rail	Х		
Common Gallinule	Х		Х .
American Coot	Х		x
Semipalmated Plover	X	·	· · · · · · · · · · · · · · · · · · ·
Killdeer	X		
Mountain Plover	Х	·	
American Golden Plover	X		X
Black-bellied Plover	X		
Common Snipe	Х		X
Long-billed Curlew	X		X
Whimbrel	Χ .		Y
Spotted Sandpiper	X		X
Willet	X		X
Greater Yellowlegs	X		X
Lesser Yellowlegs	X		X
Pectoral Sandpiper	X		X
Least Sandpiper	X		X
Dunlin	X		X
Short-billed Dowitcher	X		Y .
Long-billed Dowitcher	X		X
Western Sandpiper	X		X
Marbled Godwit	X		X

SPECIES	. Species Fully Mitigated	Species Less Than Fully Mitigated 2/	Species Provided Ancillary Benefits
American Avocet	х		
Black-necked Stilt	x		
Glaucous-winged Gull	x		
Western Gull	, x		
Herring Gull	х		
California Guli	x		Z.
Ring-billed Gull	X		
Mew Gull	X		
Black-headed Gull	X		
Bonaparte's Gull	X		
Forster's Tem	X		
Caspian Tern	X		
Rock Dove	X		
Mourning Dove	X		
Yellow-billed Cuckoo	X		X
Barn Owl	X		X
Screech Owl	X		X
Great Horned Owl	X		X
Burrowing Owl		X	
Long-eared Owl	X		***************************************
Short-eared Owl	X	-	X
Poorwill	X		
Lesser Nighthawk	X		
Vaux's Swift	X		
Anna's Hummingbird	X		X
Belted Kingfisher	X		
Common Flicker	X		X
Acom Woodpecker	X		
Lewis Woodpecker	X		

SPECIES	Species Fully Mitigated	Species Less Than Fully Mitigated 2/	Species Provided Ancillary Benefits
Yellow-bellied Sapsucker	X		
Downy Woodpecker	х		X
Nuttall's Woodpecker	x		
Western Kingbird	х		
Eastern Kingbird	X		
Ash-throated Flycatcher	Х		x
Black Phoebe	x	٠	X
Say's Phoebe	Х		X
Willow Flycatcher	X	,	
Hammond's Flycatcher	X		, , , , , , , , , , , , , , , , , , ,
Dusky Flycatcher	X		
Western Flycatcher	X		X
Western Wood Pewee	X		
Vermilion Flycatcher	X		
Horned Lark		·X	· · · · · · · · · · · · · · · · · · ·
Violet-green Swallow	X		
Tree Swallow	X	-	X
Rough-winged Swallow	X		
Barn Swallow	X		
Cliff Swallow	X		
Purple Martin	X		
Yellow-billed Magpie	X		
Scrub Jay	X		
Common Raven	X		
Common Crow	X		
Bushtit	X		
White-breasted Nuthatch	X		
Red-breasted Nuthatch	X		
Wrentit	X		

SPECIES	Species Fully Mitigated	Species Less Than Fully Mitigated 2/	Species Provided Ancillary Benefits
Bewick's Wren	Х		
Long-billed Marsh Wren	х		X
Mockingbird	Х		
American Robin	X		
Varied Thrush	Х		X
Hermit Thrush	Х		* .
Swainson's Thrush	Х		LANGUAGU AND
Blue Gray Gnatcatcher	X		
Western Bluebird	Х		
Golden-crowned Kinglet	Х		
Ruby-crowned Kinglet	X		X
Water Pipit	Х		
Cedar Waxwing	Х	,	
Phainopepla	X	`	····
Loggerhead Shrike	X		
Starling		x	
Hutton's Vireo	X		X
Solitary Vireo	X		X
Warbling Vireo	Х		X
Orange Crowned Warbler	· X		X
Yellow Warbler	· X		X
Yellow-rumped Warbler	X		X
Black-throated Gray Warbler	X		Χ .
Townsend's Warbler	X		. X
MacGillivray's Warbler	Х		X
Wilson's Warbler	X		X
Common Yellowthroat	X		X
House Sparrow		X	
Western Meadowlark		X	

SPECIES	Species Fully Mitigated	Species Less Than Fully Mitigated 2/	Species Provided Ancillary Benefits
Yellow-headed Blackbird	X		· X
Brewers Blackbird	X		
Red-winged Blackbird	X		
Tri-colored Blackbird	х		
Brown-headed Cowbird		X	
Western Tanager	X	·	X
Black-headed Grosbeak	х		X
Blue Grosbeak	X		X
Lazuli Bunting	х		X
Evening Grosbeak	Х ,		X
Purple Finch	Х		X
House Finch	X		X
Pine Siskin	x		
American Goldfinch	X		X
Lesser Goldfinch	X		X
Lawrence's Goldfinch	Х		
Red Crossbill	X		
Green-tailed Towhee	X		
Rufous-sided Towhee	X		X
Brown Towhee	X		
Savannalı Sparrow		X	·
Grasshopper Sparrow		X	
Vesper Sparrow	X		
Lark Sparrow		X	
Dark-eyed Junco	X		
Chipping Sparrow	X		
White-crowned Sparrow		X	
Golden-crowned Sparrow	X		
Fox Sparrow	X		

SPECIES	Species Fully Mitigated	Species Less Than Fully Mitigated 2/	Species Provided Ancillary Benefits
Lincoln's Sparrow	X		
Song Sparrow	X		
Suisun Song Sparrow	X		
		·	
			¥
<u>MAMMALS</u>			
Virginia Opossum	X		X
Ornate Shrew	X		
Broad-footed Mole		х	
Yuma Myotis	X		X
California Myotis	X		X
Western Pipistrelle	X ,		X
Big Brown Bat	X		X.
Red Bat	X		X
Hoary Bat	X		X
Townsend's Big-eared Bat	X		X
Pallid Bat	X		<u>x</u>
Brazilian Free-tailed Bat	X		X
Black-tailed Hare		X	
California Ground Squirrel		X	·
Botta's Pocket Gopher		X	
Beaver	X		
Western Harvest Mouse		X	
Deer Mouse	X		
California Vole		X	
Muskrat	X		X
Black Rat	X		
Norway Rat		X	

SPECIES	Species Fully Mitigated	Species Less Than Fully Mitigated 2/	Species Provided Ancillary Benefits
House Mouse		Х	
Coyote		X	
Gray Fox	Х		
Raccoon	X		
Long-tailed Weasel	Х		
Mink	X		*
Striped Skunk		X	
River Otter	X		
Bobcat	X		
Harbor Seal	X		
Mule Deer	X		
Feral Pig	X		
California Sea Lion	x		
REPTILES			
Western Pond Turtle	X		
Western Fence Lizard	X		
Yellow-bellied Racer	Х	·	· · · · · · · · · · · · · · · · · · ·
San Joaquin Whipsnake	X		
Coast Horned Lizard	X		
California Whiptail	X		
California Alligator Lizard	X		
Pacific Gopher Snake	X		
Common Kingsnake	X		
Common Valley Garter Snake	X		
Giant Garter Snake	X		<u> </u>

SPECIES	Species Fully Mitigated	Species Less Than Fully Mitigated 2/	Species Provided Ancillary Benefits
<u>AMPHIBIANS</u>			
California Newt	Х		
California Slender Salamander	. X	•	
Arboreal Salamander	X		
Western Toad	X		
Pacific Treefrog	X		¥
Bullfrog	Х		
·			

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SPECIES	Species Fully Mitigated	Species Less Than Fully Mitigated 2/	Species Provided Ancillary Benefits
American Avocet	X		
Black-necked Stilt	Х		
Glaucous-winged Gull	Х		
Western Gull	х		
Herring Gull	X		
California Guli	х		£
Ring-billed Gull	Х		
Mew Gull	X		
Black-headed Gull	X		
Bonaparte's Gull	X		
Forster's Tern	Х		
Caspian Tern	Х		
Rock Dove	X		
Mourning Dove	X		
Yellow-billed Cuckoo	. X		X
Barn Owl	. X		X
Screech Owl	X		X
Great Horned Owl	X		X
Burrowing Owl		Х	
Long-eared Owl	X		
Short-eared Owl	X		Х
Poorwill	X		
Lesser Nighthawk	X		
Vaux's Swift	X		
Anna's Hummingbird	X		X
Belted Kingfisher	X		,
Common Flicker	X		X
Acorn Woodpecker	. X		
Lewis Woodpecker	X		

SPECIES	Species Fully Mitigated	Species Less Than Fully Mitigated 2/	Species Provided Ancillary Benefits
Yellow-bellied Sapsucker	х		
Downy Woodpecker	х		Х
Nuttall's Woodpecker	X		
Western Kingbird	X		
Eastern Kingbird	X		
Ash-throated Flycatcher	X		X
Black Phoebe	х		X
Say's Phoebe	X		X
Willow Flycatcher	X		
Hammond's Flycatcher	X		
Dusky Flycatcher	X		
Western Flycatcher	X		X
Western Wood Pewee	X		
Vermilion Flycatcher	X		
Homed Lark		X	
Violet-green Swallow	X		
Tree Swallow	, X		X
Rough-winged Swallow	X		-
Barn Swallow	X		
Cliff Swallow	X		
Purple Martin	X		
Yellow-billed Magpie	X		
Scrub Jay	X		
Common Raven	X		
Common Crow	X		
Bushtit	X		
White-breasted Nuthatch	X		
Red-breasted Nuthatch	X		
Wrentit	X		

SPECIES	Species Fully Mitigated	Species Less Than Fully Mitigated 2/	Species Provided Ancillary Benefits
Bewick's Wren	Х		
Long-billed Marsh Wren	X		X
Mockingbird	X		
American Robin	X		
Varied Thrush	X		X
Hermit Thrush	X		
Swainson's Thrush	X		
Blue Gray Gnatcatcher	X		
Western Bluebird	Х		
Golden-crowned Kinglet	X		
Ruby-crowned Kinglet	X		X
Water Pipit	Х		
Cedar Waxwing	X		
Phainopepla	Х		
Loggerhead Shrike	. X	,	
Starting		X	
Hutton's Vireo	X		X
Solitary Vireo	X		
Warbling Vireo	X		X
Orange Crowned Warbler	Х	,	X
Yellow Warbler	X		X
Yellow-rumped Warbler	X		X
Black-throated Gray Warbler	X		X
Townsend's Warbler	X		X
MacGillivray's Warbler	X		
Wilson's Warbler	X		X
Common Yellowthroat	X		X
House Sparrow		X	X
Western Meadowlark		X	

SPECIES	Species Fully Mitigated	Species Less Than Fully Mitigated 2/	Species Provided Ancillary Benefits
Yellow-headed Blackbird	X		Х
Brewers Blackbird	X		
Red-winged Blackbird	X		
Tri-colored Blackbird	X		
Brown-headed Cowbird		X	
Western Tanager	X		X
Black-headed Grosbeak	X		X
Blue Grosbeak	X		X
Lazuli Bunting	х		X
Evening Grosbeak	Х		X
Purple Finch	х		x
House Finch	X		x
Pine Siskin	X		
American Goldfinch	X		X
Lesser Goldfinch	X		X
Lawrence's Goldfinch	X		
Red Crossbill	X		
Green-tailed Towhee	X		
Rufous-sided Towhee	X		X
Brown Towhee	X		
Savannah Sparrow		X	
Grasshopper Sparrow		X	
Vesper Sparrow	X		,
Lark Sparrow		X	
Dark-eyed Junco	X		
Chipping Sparrow	X		
White-crowned Sparrow		X	
Golden-crowned Sparrow	X		
Fox Sparrow	X		

SPECIES	Species Fully Mitigated	Species Less Than Fully Mitigated 2/	Species Provided Ancillary Benefits
Lincoln's Sparrow	X		
Song Sparrow	X		
Suisun Song Sparrow	X		
			Υ .
MAMMALS			
Virginia Opossum	· X		X
Ornate Shrew	X		
Broad-footed Mole		X	
Yuma Myotis	X	·	x
California Myotis	Х		X
Western Pipistrelle	Х		X
Big Brown Bat	X		X
Red Bat	Х		X
Hoary Bat	Х	···	X
Townsend's Big-eared Bat	Х		X
Pallid Bat	Х		X
Brazilian Free-tailed Bat	X		X
Black-tailed Hare		X	
California Ground Squirrel		X	
Botta's Pocket Gopher		X	
Beaver	X		
Western Harvest Mouse		X	
Deer Mouse	X		
California Vole		X	
Muskrat	Х		X
Black Rat	X	· ·	
Norway Rat		X	

SPECIES	Species Fully Mitigated	Species Less Than Fully Mitigated 2/	Species Provided Ancillary Benefits
House Mouse		X	Denones
Coyote		X	· · · · · · · · · · · · · · · · · · ·
Gray Fox	X		
Raccoon	Х		
Long-tailed Weasel	X		
Mink	X		
Striped Skunk		X	x
River Otter	X		
Bobcat	X		
Harbor Seal	X		
Mule Deer	Х		
Feral Pig	X		
California Sea Lion	X		
			· · · · · · · · · · · · · · · · · · ·
REPTILES			<u> </u>
Western Pond Turtle	X		
Western Fence Lizard	X		<u> </u>
Yellow-bellied Racer	X		
San Joaquin Whipsnake	X		
Coast Horned Lizard	X		
California Whiptail	X		<u> </u>
California Alligator Lizard	X		
Pacific Gopher Snake	X		
Common Kingsnake	X		
Common Valley Garter Snake	Χ .		
Giant Garter Snake	X		
			·

SPECIES	Species Fully Mitigated	Species Less Than Fully Mitigated 2/	Species Provided Ancillary Benefits
AMPHIBIANS			
California Newt	X		
California Slender Salamander	X		
Arboreal Salamander	X		
Western Toad	X		
Pacific Treefrog	X		
Bullfrog	х		\

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#### California Department of Fish and Game

- B6-1. Since this letter was submitted, the SWRCB has concluded formal consultation with DFG on project effects on listed fish species. In 1998, DFG issued a no-jeopardy biological opinion that addressed project effects on delta smelt and winter-run chinook salmon. Additionally, in 1997 NMFS issued no-jeopardy biological opinions that addressed project effects on winter-run chinook salmon, Central Valley steelhead ESU, and Central Valley spring-run chinook salmon ESU; also in 1997, USFWS issued no-jeopardy biological opinions that addressed project effects on delta smelt and splittail. The measures required by the DFG, NMFS, and USFWS biological opinions provide protections for nonlisted aquatic species and their habitats as well as listed species. If the lead agencies approve Delta Wetlands' permit applications, Delta Wetlands will be required to implement the terms of the biological opinions as part of its operating conditions. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for details about the formal consultation and discussion of the biological opinion terms.
- **B6-2.** See Master Response 3, "Areas of End Use and Potential Growth-Inducement Effects of Delta Wetlands Water Deliveries".
- **B6-3.** The California and federal ESA consultation was completed for the Delta Wetlands Project, and the biological opinions were included as appendices to the 2000 REIR/EIS.
- **B6-4.** If the lead agencies approve Delta Wetlands' permit applications, Delta Wetlands will be required to implement the terms of the biological opinions as part of its operating conditions. See also Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".
- **B6-5.** Delta Wetlands would be required to implement the HMP to proceed with the project. As identified in the 1995 DEIR/EIS, the HMP was designed to offset all wildlife and wetland effects of the proposed reservoir operations. It should be noted, however, that although management of shallow water on the reservoir islands is included in the project description, it is not required to offset wildlife and wetland effects of the proposed Delta Wetlands Project, including effects on wintering waterfowl.
- **B6-6.** The FOC terms, developed through the federal and California ESA consultation process, place parameters on Delta Wetlands Project operations to ensure that the project would not compromise the protection measures included in the 1995 WQCP and the Water Accord. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", and responses to Comments A4-7 and A7-2.
- **B6-7.** Page 2-8 of Chapter 2, "Delta Wetlands Project Alternatives", of the 1995 DEIR/EIS (see page 2-10 of Chapter 2 of FEIS Volume 1) provided a description of the inner levee system. In response to the commenter's request for more detail about this system, the pertinent text has been changed to include specifications of the inner levee system and its

management. On page 2-8 of Chapter 2 of the 1995 DEIR/EIS (FEIS page 2-10), the second paragraph under "Shallow-Water Management on the Reservoir Islands" has been revised as follows:

Delta Wetlands would construct and maintain an inner levee system on the bottoms of the reservoir islands. The system would consist of a series of low-height levees and connecting waterways and would manage shallow water during periods of nonstorage. The inner levees would be broad earthen structures large enough to serve as roadways during nonstorage and shallowwater wetland conditions and similar to the structures currently in place on existing farm fields. The inner levee system and associated water control structures would be designed to allow at least 65% of each reservoir island to be flooded to create shallow-water wetlands. At least 50% of the flooded area would be managed to provide an average water depth of 12 inches, and up to 15% of the area would be flooded to a depth of 24 inches or more. Water control structures would be installed to manage water to contain outbreaks of wildlife disease and mosquito production. Appendix 2 includes details on levee design and borrow sites for levee improvement materials. More detail regarding levee design and maintenance is presented in Chapter 3D, "Flood Control".

**B6-8.** See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for a description of the outcome of the consultation process. If the lead agencies approve Delta Wetlands' permit applications, Delta Wetlands will be required to implement the terms of the biological opinions as part of its operating conditions.

As described in Chapter 5 of the 2000 REIR/EIS (see Chapter 3F of Volume 1 of this FEIS) and summarized in Master Response 4, DFG's 1998 biological opinion on project effects on delta smelt and winter-run chinook salmon also assessed project impacts on spring-run chinook salmon, but made no conclusions about effects on this species. However, the restrictions on project operations included in the DFG and NMFS biological opinions for the protection of winter-run chinook salmon cover the period when spring-run chinook salmon occur in the Delta. DFG indicated in its biological opinion that its RPMs would minimize adverse impacts of the incidental take of spring-run chinook salmon as well as that of listed species.

**B6-9.** This comment refers to several issues that have been addressed through the federal and California ESA consultation process since the comment letter was written.

The relationship between optimal salinity habitat and abundance of fish is difficult to evaluate; however, project impacts on optimal salinity habitat were evaluated in the 1995 DEIR/EIS based on a methodology that recognized a significant relationship between indices of fish abundance and the availability of optimal salinity habitat. To address concerns about optimal salinity habitat, DFG, NMFS, and USFWS included in the FOC

several terms that directly limit the change in the location of X2 that Delta Wetlands diversions would be allowed to cause. These terms are described generally in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", and are detailed in response to Comment A7-3.

The DFG and NMFS biological opinions address potential project effects on juvenile chinook salmon; see Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

The following definition was applied to significance of direct impacts in the 1995 DEIR/EIS (see page 3F-15 of Volume 1 of this FEIS): "[I]mpacts were considered significant if it was determined that conditions contributing to existing stress would be worsened by Delta Wetlands Project operations and facilities, resulting in a substantial reduction in population abundance and distribution". As further noted, the definition of a "substantial" reduction varies with each species; it depends on the ability of the population to maintain or exceed current production levels through mechanisms that compensate for reduced abundance of earlier life stages. Impacts were considered cumulatively significant if project operations and facilities would contribute to existing or future stress that causes or would cause a substantial reduction in population abundance and distribution. The definitions of significance used in the analyses are consistent with CEQA and NEPA.

All potential effects of project operations on aquatic species are addressed by the FOC and RPMs described in the biological opinions. The FOC and RPMs include restrictions on project diversion and discharge operations, measures to compensate for project effects on habitat, and a comprehensive monitoring program. The measures described in the biological opinions replace the mitigation measures presented in the 1995 DEIR/EIS for the proposed project. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for more information on the results of the formal consultation and on terms of the biological opinions.

- **B6-10.** See response to Comment B7-64 for a discussion of the potential for predation at Delta Wetlands facilities.
- **B6-11.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities". This discussion describes the potential effects of boat use on aquatic habitat and mitigation included in the FOC to compensate for those effects.

Project discharges are not expected to increase channel velocities substantially; additionally, after the 1995 DEIR/EIS was published, Delta Wetlands changed the proposed location of the Bacon Island discharge facility from Santa Fe Cut to Middle River. Therefore, project discharges are not expected to cause erosion of channel islands on the northeast side of Franks Tract or in Santa Fe Cut. The potential effects of maximum Delta Wetlands diversions and discharges on local channel velocity were discussed under Impacts B-1 and B-2 in Chapter 3B, "Hydrodynamics", of the 1995 DEIR/EIS (see page

- 3B-19 in Chapter 3B of FEIS Volume 1). The results of the analysis indicated that the maximum possible channel velocities that may result from Delta Wetlands Project operations would be within the range of conditions normally encountered during tidal fluctuations in Delta channels that surround the project islands; therefore, impacts on channel velocities during maximum diversions and discharges were determined to be less than significant. See also response to Comment B6-31 below. The FOC terms developed after this comment was submitted include a requirement that Delta Wetlands conserve in perpetuity 200 acres of shallow-water rearing and spawning habitat as compensation for potential project effects on habitat.
- **B6-12.** The biological opinions include terms that limit the effects of Delta Wetlands discharges on DO levels. See "Project Effects on Dissolved Oxygen Levels" in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".
- **B6-13.** See Master Response 1, "Project Objectives: Analyzing Effects of Water Transfers, Banking, and Augmenting Outflow", and Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program".
- **B6-14.** See Master Response 1, "Project Objectives: Analyzing Effects of Water Transfers, Banking, and Augmenting Outflow", for a discussion regarding use of the Delta Wetlands Project for water transfers and water banking.
- **B6-15.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities". This discussion addresses the potential effects of boat use on aquatic and channel-island habitat and FOC measures designed to compensate for those effects. This master response also discusses additional proposed mitigation reducing the number of boat slips at recreation facilities; the measure would reduce the effects of construction and use of recreation facilities and of increased boating associated with the Delta Wetlands Project. Spills of fuel and other materials are discussed in Master Response 5 under "Demand for Sewage Facilities and the Potential for Accidental Spills". In addition, "Alteration of Habitat" in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", lists the measures required by the biological opinions to reduce or compensate for changes in habitat that may result from the construction of recreation facilities and other project features (e.g., intake and discharge locations). See also response to Comment B7-64 for a discussion of the potential for predation at project recreation facilities.
- **B6-16.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".
- **B6-17.** The HMP developed by the lead agencies and DFG was designed to compensate fully for the effects of the proposed project on wildlife and wetland resources, including project effects on sandhill crane habitat. The proposed recreation facilities located on the eastern

one-third of Bouldin Island are considered part of the HMP, and their effects on sandhill cranes were evaluated during the HMP development process. Therefore, Delta Wetlands need not revise the proposed locations for these facilities.

- **B6-18.** Activities of current and former landowners of the Delta Wetlands Project islands conducted under the Senate Bill (SB) 34 program are not part of the proposed project or project alternatives. For the purposes of the NEPA and CEQA analysis, the improved exterior levee slopes are considered an existing condition. As noted in Chapter 3G, "Vegetation and Wetlands", (see page 3G-10 of Chapter 3G of FEIS Volume 1) exterior banks with riprapped slopes that have been subject to recent maintenance generally would remain unvegetated under project conditions. The impact analysis did not include activities that already occurred under SB 34 because they are not part of the proposed project. Additionally, the lead agencies can require mitigation in the NEPA and CEQA documentation for the project only for those activities proposed by the project proponent and the activities over which the agency has jurisdiction in the CEQA/NEPA process.
- **B6-19.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".
- Water Deliveries to State Water Project Service Areas" does not present a complete process for evaluating environmental effects of additional water deliveries; it describes the program being used to form this methodology. The growth-inducement analysis for the Delta Wetlands Project used a method for evaluating the quantitative relationship between population growth and water supplies known as the "population-supported" method documented in the DWR report. This method uses per capita estimates of water use to determine growth supported by a given volume of water, incorporating the assumption that a specific water volume can physically support a certain number of people per year. See Master Response 3, "Areas of End Use and Potential Growth-Inducement Effects of Delta Wetlands Water Deliveries".
- B6-21. The analysis presented in the 1995 DEIR/EIS assumes that the recreation facilities on the Delta Wetlands Project islands would be privately owned and operated. The environmental effects on Delta resources of recreation activities and construction of facilities would not change if public recreation were provided under the adopted project. Under existing conditions, the Delta Wetlands Project islands provide few opportunities for public access and recreation (see pages 3J-3 through 3J-5 in Chapter 3J, "Recreation and Visual Resources", of the 1995 DEIR/EIS [pages 3J-4 through 3J-6 of FEIS Volume 1]). Implementing the Delta Wetlands Project would not reduce public access or recreation opportunities on the project islands; therefore, the lead agencies have not required that Delta Wetlands provide for public recreation as mitigation.
- **B6-22.** The Delta Wetlands environmental research fund would contribute to research in the Delta. As described on page 2-9 of the 1995 DEIR/EIS (page 2-11 of FEIS Volume 1), the allocation of those funds would be under the direction of Delta Wetlands and a research

committee. In response to the commenter's question of an appropriate level of contribution, the Delta Wetlands environmental research fund is not designed to meet all or a major portion of the research needs in the Delta. By establishing this fund, Delta Wetlands contributes to state, federal, and private research in the Delta, but it should not be considered a major funding source. The partitioning of the fund for wildlife- and fishery-related research would be determined by Delta Wetlands and the research committee. The research committee is designed to act as a "grants committee" in determining where monies would be spent. This committee would be made up of representatives from DFG, USFWS, NMFS, the SWRCB, Delta Wetlands, fishery-oriented and waterfowl-oriented organizations, and one general environmental organization. No additional committee would be required.

- **B6-23.** Measures to mitigate project impacts, including implementation of the HMP, have been made terms and conditions of any water right permit issued by the SWRCB for the Delta Wetlands Project. If Delta Wetlands transferred or sold the reservoir islands and associated appropriative water rights to another entity, the terms and conditions of the water right permits would still apply to the permitted project operations. It should be noted that the project is being analyzed as a stand-alone project and that no applications for the sale or lease of the project have been made. See also Chapter 2 of FEIS Volume 1.
- **B6-24.** The development and maintenance of an inner levee system and the management of shallow water on the reservoir islands is considered part of the proposed project but is not required to compensate for loss of habitat under water storage conditions. See response to Comment B6-7 for more information.
- **B6-25.** See Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program".
- **B6-26.** The NEPA and CEQA analysis assumes that Delta Wetlands would not interfere with any of the following:
  - # exercise of DWR's and USBR's water rights or those of any other senior water right holder;
  - # compliance with the 1995 WQCP;
  - # compliance with terms and conditions (e.g., take limits) specified in the biological opinions issued by NMFS and USFWS on the effects of SWP and CVP operations on winter-run chinook salmon and delta smelt; or
  - # operation of upstream reservoirs.

See Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, Including the CALFED Bay-Delta Program", regarding project effects on upstream reservoir operations and instream flows.

Additionally, as described in Chapter 2 of the 2000 REIR/EIS and of FEIS Volume 1, Delta Wetlands entered into stipulated agreements with both DWR and USBR during the 1997 water right hearing. These agreements describe how Delta Wetlands would operate independently without interfering with DWR's and USBR's operations of the SWP and CVP. The Delta Wetlands Project would not cause any aspect of SWP or CVP operations to change, except that some export pumping capacity that cannot be used by SWP and CVP base operations would be used to export Delta Wetlands discharges.

- **B6-27.** See Master Response 1, "Project Objectives: Analyzing Effects of Water Transfers, Banking, and Augmenting Outflow", and Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program".
- Assuming closure of the temporary agricultural barriers would not change the impact B6-28. conclusions identified in the 1995 DEIR/EIS. Hydrodynamic changes caused by Delta Wetlands Project operations would mainly occur in the channels immediately adjacent to the project islands and directly between the Delta Wetlands islands and the export facilities. The temporary agricultural barriers are essentially weirs that affect circulation in some south Delta channels, slowing the draining of the channels and maintaining channel stage to enable agricultural pumps to draw water. These barriers do affect south Delta hydrodynamics; however, the barriers are not located adjacent to the Delta Wetlands Project islands or on the main channels directly between the project islands and the export facilities and, therefore, would only minimally affect the hydrodynamic changes associated with Delta Wetlands Project operations. The assessment in the 1995 DEIR/EIS did assume operation of the barrier at the head of Old River, which has major effects on fisheries. Chapter 3F of the 1995 DEIR/EIS (see FEIS Volume 1) described the effects of operating this barrier, including the resulting Delta flow and transport conditions. Chapter 3F described mitigation to reduce this effect; this mitigation has been replaced by the FOC and biological opinion RPMs. Incorporating these measures into the proposed project reduces all fishery impacts to a less-than-significant level.
- **B6-29.** See responses to Comments B6-11 and B6-31.
- **B6-30.** Potential project impacts on water temperature, DO levels, and salinity are addressed by the FOC terms developed through the ESA consultation process. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".
- **B6-31.** Impact D-4 on page 3D-15 of the 1995 DEIR/EIS (page 3D-17 in Chapter 3D of FEIS Volume 1) refers to the potential for effects on levee stability from erosion of levee toe berms caused by water movement at the siphon and pump stations. The term "toe berm", as defined in the glossary for the 1995 DEIR/EIS, refers to the broad bottom section of a levee that is used to steady the levee structure (see Figure 3D-2 in Chapter 3D). The design of the pump and siphon stations includes erosion-control elements such as expansion chambers and placement of riprap. Therefore, the potential for erosion of the levee toe

berms near the siphon and pump stations would be considered less than significant. See also Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".

**B6-32.** As described in Chapter 3E of Volume 1 of this FEIS, electrical distribution lines would need to be relocated to the levee perimeters on Webb Tract as mitigation for inundation of the existing poles during water storage; they may also need to be expanded on the habitat islands to provide electrical service to the proposed project facilities. These distribution lines would be configured similarly to existing lines (see Figure 3E-3 in Chapter 3E) and usually would be located on top of the islands' perimeter levees.

Presumably, some level of waterfowl mortality is currently attributable to bird strikes on existing transmission lines. Although the frequency of bird strikes under existing conditions is unknown, resulting waterfowl mortality is probably not substantial under existing conditions.

On the habitat islands, the extension of electrical lines on levees, coupled with expected increases in waterfowl use, could increase the frequency of bird strikes under project conditions. The level of associated waterfowl mortality, however, is not expected to be significant because waterfowl in the Delta typically flare away from levees when flying to or from islands, thereby reducing the likelihood of bird strikes on lines located on the perimeter levees. Also, human activity along levees (e.g., automobile use, maintenance activities, presence of hunters, presence of recreation facilities) would be greater under project conditions and would tend to keep waterfowl away from the levee tops. Waterfowl strikes on transmission lines are expected to be less frequent on the reservoir islands than on the habitat islands under project conditions because substantially fewer waterfowl are expected to use the reservoir islands. Because bird strikes are not expected to be a significant source of waterfowl mortality, construction of brood ponds to offset potential mortality associated with bird strikes is not required.

- B6-33. The contribution of Delta Wetlands Project operations to entrainment of striped bass eggs, larvae, and juveniles was addressed in Impacts F-5 and F-7. The 1995 DEIR/EIS included mitigation measures to reduce these impacts to a less-than-significant level. These measures have been replaced by the terms of the biological opinions, which are now incorporated into the project description. Although striped bass were not formally addressed during the federal and California ESA consultation process, the measures adopted in the biological opinions reduce project effects on striped bass and other species. See "Indirect Effects of Delta Wetlands Project Diversions and Discharges on Flows, Downstream Transport, Area of Optimal Salinity Habitat, and Entrainment" in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".
- **B6-34.** The purpose of the environmental impact analysis is to identify significant environmental impacts associated with implementing the proposed project. Therefore, the modeling of Delta Wetlands Project operations used a "worst-case" scenario under which all water

discharged by the Delta Wetlands Project was simulated as being exported through the SWP and CVP pumps. See also Master Response 1, "Project Objectives: Analyzing Effects of Water Transfers, Banking, and Augmenting Outflow".

Additionally, as part of the consultation process for compliance with both the federal and California ESAs, USACE, the SWRCB, NMFS, USFWS, DFG, and Delta Wetlands agreed on the project operating parameters referred to as the FOC. The FOC, which have been incorporated into the proposed project, more closely define the operations of the proposed project. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

- As described on page 2-15 in Chapter 2 of the 1995 DEIR/EIS (page 2-17 of FEIS Volume B6-35. 1), the difference between water budget terms under the No-Project Alternative and existing conditions is not discernable in modeling of water operations and, therefore, no distinction is made between water budgets for existing conditions and the No-Project Alternative. As explained further on page 3A-9 of the 1995 DEIR/EIS (page 3A-10 in Chapter 3A of FEIS Volume 1), Delta water supply under existing conditions, which include agricultural land uses on the Delta Wetlands Project islands, is similar to the water supply under the No-Project Alternative; the estimated changes in consumptive water use between the existing agricultural land uses and the intensified agricultural uses under the No-Project Alternative (estimated to be as much as 30 thousand acre-feet per year (TAF/yr), as shown in Table 2-2 in FEIS Volume 1, Chapter 2) are not measurable at the scale of monthly water supply modeling. Therefore, rather than presenting two lists of the same values for existing Delta water supply conditions and the No-Project Alternative conditions, the NEPA and CEOA analysis describes the simulation result for the No-Project Alternative only.
- **B6-36.** Information is not available that clearly supports the assumption that optimal rearing habitat is equivalent to shallow shoal habitat. To address concerns about optimal salinity habitat, DFG, NMFS, and USFWS included in the FOC several terms that directly limit the change in the location of X2 that Delta Wetlands diversions would be allowed to cause and that require Delta Wetlands to conserve in perpetuity 200 acres of shallow-water rearing and spawning habitat. These terms are described generally in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", and are detailed in response to Comment A7-3.
- **B6-37.** See "Alteration of Habitat" in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for a discussion of habitat replacement and limitations on construction. If the lead agencies approve Delta Wetlands' permit applications, Delta Wetlands will be required to implement the terms of the biological opinions as part of its operating conditions.
- **B6-38.** DFG's concerns about the proposed project's effects on channel temperatures and DO levels are addressed by the FOC. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

- **B6-39.** Conditions immediately before the February–June period are shown in the biological assessment (Appendix F2 of the 1995 DEIR/EIS). Effects of the shift in X2 are described in the 1995 DEIR/EIS on pages 3F-22 and 3F-23 and under Impact F-7 (see pages 3F-25 and 3F-26 in Chapter 3F of FEIS Volume 7). The FOC terms that limit project effects on X2 are described generally in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", and are detailed in response to Comment A7-3.
- **B6-40.** As described in the 1995 DEIR/EIS, Delta Wetlands Project discharges would not affect Sacramento River or San Joaquin River inflow to the Delta. See response to Comment A2-5 regarding the salmon mortality index. The potential effects of project operations on chinook salmon are addressed fully in the DFG and NMFS biological opinions on the project.
- **B6-41.** The risk of additional entrainment that may result from a shift in the location of optimal salinity habitat was included in the evaluation of downstream transport (Impact F-5) and increased entrainment loss of striped bass and delta smelt (Impact F-7). Both impacts were determined to be significant and mitigation was recommended. The commenter's assumption that benefits of Alternative 1 are overstated is incorrect; see response to Comment B6-35 regarding the similarity between water budget terms under the No-Project Alternative and existing conditions. Increases in outflow that may result from discontinuing agricultural diversions would have minimal effects on the availability of optimal salinity habitat. More important are the geographic location of the optimal salinity range and the shifts caused by Delta Wetlands diversions.

The mitigation proposed in Chapter 3F has been replaced by the terms of the biological opinions, which are now incorporated into the project description; see Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions". See response to Comment A7-3 for details about FOC restrictions on changes in X2 attributable to project operations.

- B6-42. By definition, the lower San Joaquin River is upstream of the confluence with the Sacramento River and downstream of the confluence with the Mokelumne River (see the description of methods for evaluating transport effects in Appendix F2 of the 1995 DEIR/EIS). Available information indicates that few striped bass spawn in the San Joaquin River upstream of the Delta (California Department of Fish and Game 1992). Nevertheless, the analysis of transport conditions determined that impacts of Delta Wetlands operations would be significant (Impact F-5), and mitigation was proposed to reduce the impact to a less-than-significant level. This mitigation has been replaced by the terms of the biological opinions, which are now incorporated into the project description; see Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".
- **B6-43.** Available information does not indicate that existing Delta diversions and exports significantly affect American shad (i.e., substantially reduce population abundance).

Delta Wetlands diversions would minimally increase entrainment of American shad during August–October. American shad present in the Delta during this period would likely avoid entrainment in project diversions because the project intakes would be equipped with effective fish screens. As discussed on page 3F-22 of Chapter 3F of the 1995 DEIR/EIS (page 3F-24 of FEIS Volume 1), most American shad enter the Delta from the Sacramento River, and Delta Wetlands diversions would not affect the flow division between the Sacramento River, the DCC, and Georgiana Slough.

The FOC diversion and discharge restrictions that have been incorporated into the project description reduce project effects on American shad, as well as other species. See "Indirect Effects of Delta Wetlands Project Diversions and Discharges on Flows, Downstream Transport, Area of Optimal Salinity Habitat, and Entrainment" in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

- **B6-44.** To address concerns about optimal salinity habitat, DFG, NMFS, and USFWS included in the FOC several terms that directly limit the change in the location of X2 that Delta Wetlands diversions would be allowed to cause. These terms are described generally in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", and are detailed in response to Comment A7-3.
- **B6-45.** The commenter's concerns about project effects on longfin smelt have been addressed by the FOC measures to protect listed species. See response to Comment A5-6 and Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".
- **B6-46.** The Delta Wetlands Project, as described in the 1995 DEIR/EIS, would not affect Sacramento River or San Joaquin River inflow to the Delta. See Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program".
- **B6-47.** The biological opinions address all potential impacts on listed species identified by USFWS, NMFS, and DFG; the restrictions on project operations (the FOC and RPMs) described in the biological opinions also provide protections for nonlisted species. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".
- **B6-48.** Mitigation Measure F-4, "Operate the Delta Wetlands Project under Operations Objectives that Would Minimize Adverse Transport Effects on Striped Bass, Delta Smelt, and Longfin Smelt", proposed in the 1995 DEIR/EIS to address Impact F-5, "Reduction in Downstream Transport and Increase in Entrainment Losses of Striped Bass Eggs and Larvae, Delta Smelt Larvae, and Longfin Smelt Larvae", has been replaced by several diversion criteria included in the FOC and in DFG's RPMs. These measures, which have been incorporated into the project description, reduce effects on striped bass, delta smelt, longfin smelt, American shad, and other species to a less-than-significant level. See

"Indirect Effects of Delta Wetlands Project Diversions and Discharges on Flows, Downstream Transport, Area of Optimal Salinity Habitat, and Entrainment" in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

**B6-49.** The CALFED Ops Group is charged with coordinating the operations of the state and federal water projects within the requirements set forth in the June 1994 Framework Agreement, December 1994 Accord, and 1995 WQCP. Inherent in this responsibility is the need to coordinate activities that may have some bearing on program objectives, which include operating water projects in compliance with the water quality objectives and coordinating ESA issues.

Because Delta Wetlands Project operations are integrally tied to the water quality standards and operations of the SWP and CVP, Delta Wetlands operations would need to be coordinated with the CALFED Ops Group. Project operations would need to be planned based on knowledge of SWP and CVP operations. Furthermore, Delta Wetlands would have to work with the Ops Group to coordinate the export of project discharges. The Ops Group might also take advantage of opportunities to use Delta Wetlands' facilities and water to meet its objectives by directly purchasing, borrowing, or trading Delta Wetlands water, or by temporarily using storage capacity (see Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program"). The Ops Group could also provide Delta Wetlands with sanctioned accounting of Delta water and information from real-time monitoring. Coordination between Delta Wetlands and the Ops Group would enhance information sharing with all Delta projects.

The Delta Wetlands Project could be integrated directly into the Ops Group by participating in monthly meetings and working with the group to meet shorter term needs. The participation of Delta Wetlands, like that of other nonstate and nonfederal entities, would be voluntary. Delta Wetlands would be expected to provide a short summary of project operations in the monthly meeting. During the meetings, Delta Wetlands and the CALFED agencies' designated representatives could initiate agreements that would change Delta Wetlands operations to accommodate CALFED's needs. Delta Wetlands could also participate in various working-level subgroups to address operational, biological, or other technical issues that may face Delta Wetlands and the Ops Group.

**B6-50.** Delta Wetlands Project impacts on optimal salinity habitat were evaluated in the 1995 DEIR/EIS based on a methodology that recognized a significant relationship between indices of fish abundance and the availability of optimal salinity habitat. To address concerns about optimal salinity habitat, DFG, NMFS, and USFWS included in the FOC several terms that directly limit the change in the location of X2 that Delta Wetlands diversions would be allowed to cause. These terms are described generally in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", and are detailed in response to Comment A7-3.

**B6-51.** As noted in Chapter 3F, "Fishery Resources", entrainment in SWP and CVP diversions has been high during periods of initial high Delta inflows in October–January. However, information is not available to substantiate the comment that when X2 is near Collinsville, striped bass and delta smelt will be in the Delta and vulnerable to entrainment. During fall, juvenile American shad and other fish species are large enough to be screened from diversions, although they are likely to be impinged. See also response to Comment B6-43 regarding entrainment of American shad.

The mitigation measure referred to by the commenter (F-4) was proposed to address Impact F-5, "Reduction in Downstream Transport and Increase in Entrainment Loss of Striped Bass Eggs and Larvae, Delta Smelt Larvae, and Longfin Smelt Larvae". Impact F-5 and Impact F-8, "Increase in Entrainment Loss of Juvenile American Shad and Other Species", are now addressed by several FOC terms and RPMs, which have been incorporated into the proposed project. See "Indirect Effects of Delta Wetlands Project Diversions and Discharges on Flows, Downstream Transport, Area of Optimal Salinity Habitat, and Entrainment" in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

- **B6-52.** The lead agencies note that the DFG comments on Alternative 1 apply to Alternative 2 as well. See responses to Comments B6-1 through B6-51.
- **B6-53.** See response to Comment A4-7.
- **B6-54.** The DFG, NMFS, and USFWS biological opinions provide a comprehensive mitigation program to reduce all potential project effects on aquatic resources to a less-than-significant level. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".
- **B6-55.** As stated in the comment, DFG assessed the performance of the HMP for all waterfowl evaluation species. The process used by the HMP team to evaluate habitat values created by habitat island designs is described on pages 3H-11 and 3H-12 of the 1995 DEIR/EIS (page 3H-13 of FEIS Volume 1) under "Use of HEP Results". The 1995 DEIR/EIS (page 3H-11) acknowledged that waterfowl habitat value would be enhanced by the management of shallow-water habitat on the reservoir islands during periods of nonstorage (see page 3H-13 of FEIS Volume 1); however, the HMP team did not consider those values to offset project impacts because future habitat conditions on the reservoir islands are unpredictable.
- **B6-56.** The management of shallow water on the reservoir islands is considered part of the proposed project but is not required to compensate for loss of habitat, including tundra swan habitat, under water storage conditions. See response to Comment B6-7 for more information.

Reference to a shallow-storage condition without an inner levee system has been deleted. If Delta Wetlands chooses to create shallow-water habitat, water would be managed to control outbreaks of botulism. The second sentence on page 3H-14 of the 1995 DEIR/EIS

under "Shallow-Storage Conditions" (see page 3H-15 of FEIS Volume 1) is revised as follows:

Habitat conditions would be similar to those described for shallow-water wetlands (see below) except that the availability of wildlife forage would be lower during storage periods that were not preceded by 60 days of nonstorage.

- **B6-57.** Management and infrastructure associated with shallow-water wetlands are described on pages 2-8 and 2-9 of the 1995 DEIR/EIS (page 2-10 of FEIS Volume 1) under "Shallow-Water Management on the Reservoir Islands" and on pages 3H-14 and 3H-15 of the 1995 DEIR/EIS (pages 3H-15 and 3H-16 of FEIS Volume 1) under "Shallow-Water Wetland Conditions". See responses to comments B6-7, B6-55, and B6-56 above.
- **B6-58.** Eight marinas in the Delta were surveyed to determine the percentage of boat-slip occupancy and peak use. The total number of occupied boat slips at each marina varied between 10% and 70%. As a conservative measure, it was assumed that 70% of the boat slips (i.e., 798 of 1,140) would be occupied at the recreation facilities under Delta Wetlands Project operations. The results of this estimate are consistent with analyses of other marinas in the project area. See also response to Comment B5-8.
- **B6-59.** The lead agencies understand that Delta Wetlands and DFG are working toward completion of an agreement under Fish and Game Code Section 2081 of the California ESA and that this agreement addresses DFG's concerns as raised in this comment letter.
- **B6-60.** The basic fish screen design proposed by Delta Wetlands was described in Appendix 2 of the 1995 DEIR/EIS. DFG, NMFS, and USFWS subsequently considered fish screen design and operation criteria in the federal and California ESA consultation. These agencies specify all their requirements for design and operation procedures for Delta Wetlands' fish screens in their biological opinions for the Delta Wetlands Project.

The FOC terms include general guidelines for the design of fish screens. The guidelines state that the fish screens "will be generally consistent with the design presented in the [1995] DEIR/EIS" except that they will be required to meet the criteria for an approach velocity of 0.2 fps. To maintain the 0.2-fps approach velocity, there must be adequate hydraulic control and debris cleaning systems; the final fish screen design will describe such systems. The FOC terms require that USFWS, NMFS, and DFG concur with the final design and installation guidelines adopted by Delta Wetlands. Delta Wetlands must submit the final fish screen design, including a monitoring program to evaluate performance criteria, to the resource agencies for approval at least 90 days before beginning to operate.

The RPMs in the NMFS and DFG biological opinions require that the resource agencies approve the final design, construction schedule, and maintenance plan for the fish screens. The NMFS biological opinion includes the following RPM:

Measures shall be taken to reduce the extent of entrainment and predation during Delta Wetlands diversion operations through the use of properly designed fish screens.

This RPM requires that the final fish screen design and construction schedule be submitted to the NMFS Southwest Region for review and acceptance before construction begins. The screen design must meet or exceed the NMFS Southwest Fish Screening Criteria for Anadromous Salmonids. At least 2 months before construction begins, Delta Wetlands must submit to NMFS a hydraulic monitoring program that evaluates the performance of the fish screens. Additionally, Delta Wetlands must submit to NMFS a proposed operations and maintenance plan that includes the following components, as stated in the RPM:

- 1) periodic underwater inspections;
- 2) periodic hydraulic measurements; [and]
- 3) periodic assessment of screen performance—component reliability, component durability, and screen-cleaning system effectiveness.

To document compliance with this RPM, Delta Wetlands must also submit an annual report to NMFS.

DFG's biological opinion (RPM 12.0) requires that Delta Wetlands' fish screens comply with DFG's fish screen policy and that Delta Wetlands develop a "Fish Screen Test Plan" and a "Fish Screen Maintenance Plan"; both of these plans must be approved by DFG. The effectiveness of cleaning methods would have to be determined through monitoring. Diversions would need to be reduced or eliminated if it is found that cleaning does not maintain the screen approach velocity within the criteria of the fish screen construction and monitoring plan.

The full texts of the FOC and the DFG, NMFS, and USFWS biological opinions are provided in Appendices B, C, D, and E, respectively, of the 2000 REIR/EIS.

- **B6-61.** The commenter is correct in noting that Table 2 of Appendix B of the biological assessment incorrectly duplicates the information in Table 3. The corrected data was transmitted to DFG during the consultation process.
- **B6-62.** See response to Comment B6-47.
- **B6-63.** The measures included in the DFG, NMFS, and USFWS biological opinions reduce project impacts on fisheries to a less-than-significant level. All reservoir flooding scenarios described in Appendix G2 of the 1995 DEIR/EIS would be subject to the diversion and discharge restrictions described in the FOC and biological opinions. See

Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

**B6-64.** The commenter is referring to the assumptions used in the 1995 DEIR/EIS analysis to predict vegetation conditions on the reservoir islands under each project alternative.

To predict future vegetation conditions, it was necessary to make an assumption regarding which storage conditions could trigger the creation of shallow-water wetlands to provide desirable habitat conditions for wildlife. As described on page G2-2 of Appendix G, shallow-water wetlands would be created only in years when there had been no storage for 60 or more consecutive days during the growing season (July 15–September 30). Although some forage would be produced under shallow-storage conditions, a period of nonstorage would allow for substantial production of waterfowl forage. Additionally, dry soil conditions might be needed to provide access to the island interiors for repair of inner levees and water control structures damaged by previous deep-water storage. Therefore, the assumption on page G2-2 is correct in defining the 60 consecutive days as "nonstorage". During project operations, Delta Wetlands may create shallow-water wetlands after periods of nonstorage of shorter or longer duration, depending on the timing of reservoir drawdowns and annual conditions.

The management of shallow water on the reservoir islands is considered part of the proposed project but is not required to compensate for loss of habitat under water storage conditions. Therefore, flooding of the reservoir islands to create shallow-water wetlands during periods of nonstorage would occur at the discretion of Delta Wetlands. See response to Comment B6-7 for more information.

- **B6-65.** As noted by the commenter, the inner levee systems on the reservoir islands are part of the proposed project. The text on page G2-3 of Appendix G is correct, but the reference to inner levee systems not being constructed was meant to refer to situations in which the inner levee system would have been damaged as a result of previous storage events. See also response to Comment B6-7.
- **B6-66.** The HMP monitoring program is described on pages 15–23 of Appendix G3. Appendix G3 of the 1995 DEIR/EIS states on page 16, "Approximately 2 years are estimated for completion of construction (i.e., monitoring years -1 and 0)". In this reference, monitoring year -1 is the first year of construction and monitoring year 0 is the second year of construction.
- **B6-67.** Monitoring requirements for wildlife species protected by the California ESA, including sandhill cranes, are described on pages 22 and 23 of the HMP (Appendix G3). Monitoring requirements, performance standards, and potential remedial measures for greater sandhill cranes and Swainson's hawks will be developed by DFG (the commenter) in consultation with Delta Wetlands as described in DFG's biological opinion for the Delta Wetlands Project in accordance with the California ESA. See page 48 of Appendix C of the 2000 REIR/EIS.

- **B6-68.** Methods that may be used to establish riparian vegetation on the habitat islands are described on page G5-9 in Appendix G5, "Summary of Jurisdictional Wetland Impacts and Mitigation". These methods do not preclude use of other techniques, including excavating existing grades so that the relationship between soil surface and groundwater elevations is appropriate for establishment and natural regeneration of riparian vegetation.
- **B6-69.** Page G5-10 in Appendix G5 describes proposed methods to establish freshwater marsh on the habitat islands. Delta Wetlands will be required to comply with the performance standards outlined in the HMP and with the mitigation developed in consultation with USACE to offset project effects on jurisdictional wetlands. The description given in Appendix G5 does not preclude the use of other techniques for establishing the freshwater marsh areas, as long as the performance standards and mitigation requirements are met.
- **B6-70.** Results of greater sandhill crane and Swainson's hawk surveys conducted in 1987 on Webb Tract are presented in Appendix H2, "Wildlife Inventory Methods and Results", on page H2-13. The recent survey information collected by DFG has been noted. The 1997 biological opinion issued by DFG for the Delta Wetlands Project addresses project effects on greater sandhill crane and Swainson's hawk. A copy of the biological opinion was included in the 2000 REIR/EIS.
- B6-71. In its wildlife species list benefits/impacts summary, DFG identifies 22 species of birds and mammals that, in its determination, would be adversely affected by implementation of the Delta Wetlands Project. These species are all associated primarily with herbaceous and agricultural habitats that dominate the Delta Wetlands Project islands under existing conditions. The 1995 DEIR/EIS, on page 3H-21 under "Impact H-1: Loss of Upland Habitats" (see page 3H-23 of FEIS Volume 1), acknowledges that there would be a net loss in acreage of upland habitat. Implementation of the HMP would partially offset these impacts by creating fewer, but higher quality, upland habitats. Therefore, although these species would be adversely affected by the Delta Wetlands Project, the impact would be less than significant. This determination is consistent with DFG's conclusion noted in footnote 2 to the table ("Remaining impacts are judged to be less-than-significant").

#### Memorandum

DEC: 2 1 1995

Jim Sutton State Water Resources Control Board Post Office Box 2000 Sacramento, California 95812-2000

Department of Water Resources

Subject: Draft Delta Wetlands Project EIR/EIS

The Department of Water Resources is providing these comments to you after reviewing the draft Environmental Impact Report/Environmental Impact Statement for the proposed Delta Wetlands project. While we feel that the overall technical studies and analyses contained in the document are satisfactory, the Department has several major concerns which are not addressed adequately in the current document. These concerns are outlined below:

The operation of the Delta Wetlands project may adversely affect or 1. compromise the water rights of the State Water Project and other more senior water rights holders in the Bay-Delta system.

Delta Wetlands proposes to divert "surplus" water flowing through the Delta into storage. However, given the complexity of factors affecting conditions in the Bay-Delta estuary, it is extremely difficult to distinguish surplus water from that which is needed to meet Bay-Delta standards, export needs and needs of in-Delta water users. The DEIR/S does not contain adequate information nor a sufficient level of detail on how the project would be operated to determine how the project will impact DWR water rights and SWP operation.

A related concern is the probable incremental effect of DW project operations on Bay-Delta aquatic species. The proposed mitigation measures to minimize potential effects of DW rely heavily on the success of unproven technology. We are concerned that any incremental adverse impacts caused by DW will not be adequately mitigated by DW and a result would be additional, restrictive regulations affecting the water supply reliability of the present SWP system.

2. The DEIR/S does not address the effect of the DW project on implementation of the Interim South Delta Program, a reasonably anticipated future project. This program, proposed jointly by DWR and the U.S. Bureau of Reclamation, currently envisions constructing and operating four flow control structures in the south Delta, channel dredging in Old River, constructing a new intake gate at

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**B7-1** 

**B7-2** 

the northeast corner of Clifton Court Forebay, and increasing diversions into Clifton Court Forebay above the current allowable level.

B7-3 cont'd

3. Available data indicate that peat soil leaching, which would occur as the Delta Wetlands islands are alternately filled and drained, may result in elevated levels of THM precursors in southern Delta waters. This increase in THM precursors could have a significant effect on the cost and feasibility of meeting increasingly stringent drinking water quality standards set by the U.S. Environmental Protection Agency for water supplies delivered by the SWP to our municipal and industrial contractors. This concern has not been adequately addressed in the DEIR/S.

B7-4

4. On December 15, 1994, representatives from the State of California, the federal government and stakeholders representing urban, agricultural, and environmental interests signed the Bay-Delta Accord. Included as a provision of this historic agreement was the formation of a joint State-federal task force to determine a long-term solution for the variety of issues affecting public resource values of the Bay-Delta estuary. Over the last year, this effort has evolved into the creation of the Bay-Delta Advisory Council and the CALFED Bay-Delta Program. This process is designed to identify future long-term Bay-Delta facilities and actions to protect the water supply reliability and ecosystem values of the Bay-Delta. The DEIR/S does not identify the relationship or compatibility of the Delta Wetlands project with the CALFED Bay-Delta Program.

**B7-5** 

6. The DEIR/S indicates that Division of Safety of Dams requirements may result in project storage elevations of less than six feet above mean sea level. According to Section 6004(c) of the California Water Code, any levees within the Sacramento-San Joaquin Delta which impound water to an elevation greater than four feet above mean sea level (1929 datum) are under the jurisdiction of the Department's Safety of Dams. The DEIR/S must clarify the proposed design to determine whether the DW project will be regulated by Safety of Dams.

**B7-6** 

The attached detailed comments on various aspects of the DEIR/S provide specific information in support of these more general operational and policy-oriented concerns made here. I trust that you will find these comments useful in evaluating and responding to the Department's concerns about DW and the DEIR/S.

Jim Sutton DEC 2 1 1995 Page Three

Beyond this EIR/S process, the Department intends to actively participate in any water rights hearings on the Delta Wetlands project. DWR hopes that the hearings will address more specifically how surplus water will be determined and the project operated so that senior water rights holders are not harmed.

If you have any questions, please contact me or have your staff contact Stein Buer of my staff at (916) 653-6628.

Kathlin R. Johnson

Chief, Division of Planning

(916) 653-1099

Attachment

# Comments on the Delta Wetlands Project Draft EIR/EIS by DWR Staff

The following compilation includes comments by the Division of Local Assistance, the Division of Operations and Maintenance, the Division of Planning, and the Environmental Services Office.

# **Division of Local Assistance**

The following sections of the draft Delta Wetlands Environmental Impact Report and Environmental Impact Statement were reviewed with focus on the impacts from the DW project discharges on TOC/DOC and THM concentrations in Delta exports:

Chapter 2.	Delta Wetlands Project Alternatives
Chapter 3C.	Affected Environment and Environmental Consequences - Water Quality
Appendix C1.	Analysis of Delta Inflow and Export Water Quality Data
Appendix C2.	Analysis of Delta Agricultural Drainage Water Quality Data
Appendix C3.	Water Quality Experiments on Potential Sources of Dissolved
	Organics and Trihalomethane Precursors for the Delta
	Wetlands Project
Appendix C4.	Delta DWQ: Delta Drainage Water Quality Model
Appendix C5.	Modeling Trihalomethane Concentrations at a Typical Water
•	Treatment Plant Using Delta Export Water

#### GENERAL COMMENTS

In summary, the DEIR/EIS analysis of impacts to water treatment plants in meeting TOC/DOC and THM standards by Jones & Stokes Associates, Inc. is incomplete. The analysis and mitigative measures were based on the current U.S. Environmental Protection Agency THM standard of 0.100 mg/L. Proposed lower THM MCLs for 1998 and year 2002 under the D-DBP Rule were not considered. The modeled results of the predicted impacts of the DW project in future years with respect to water treatment plants in meeting the proposed water quality standards must also be evaluated.

Some of the interpretations of water quality data and relationships between water quality parameters (e.g., EC and DOC) identified by Jones & Stokes are not fully supported. For example, Jones & Stokes use drainage water EC to predict the concentration of DOC from nonevaporative processes (e.g., peat soil, decaying crops). Yet, there are data in the report that show this relationship cannot be consistently used since DOC is not conservative when applied on Delta soils.

B7-8

Unobserved changes in the experimental wetlands water concentrations of inorganic variables, such as EC, TDS, sodium, chloride, and bromide, were interpreted by Jones & Stokes to mean that peat soil leaching was insignificant during the flooding and storage of water in a wetland. Our analysis of their THM yield data showed the contrary. Peat soil leaching appears to be a significant contributor of THM yielding organic matter to flooded wetlands and seasonally stored water.

B7-9

Results from the Department of Water Resources' Municipal Water Quality Investigations Program, do not fully concur with the Jones & Stokes recommendation to use UVA-254nm measurements in lieu of TOC measurements to manage DW project discharges to achieve less than significant impacts. For regulatory monitoring, the degree of precision and accuracy needed for TOC data cannot be consistently achieved by UVA measurements. New field automated TOC analyzers are, however, available.

**B7-10** 

And finally, the method of analysis employed in the DEIR/EIS consisted of a series of modeled assumptions and data, with each result serving as input to another model or computation. The results of small scale experiments were used to provide insight and prediction of the impacts of the full scale DW project. Jones & Stokes assumed a 10 percent error throughout their process. There was no evaluation of the data to test this assumption.

**B7-11** 

The DEIR/EIS needs to be revised with the additional analysis and corrections stated above in the general comments and below in the specific comments to become complete.

#### SPECIFIC COMMENTS

## Comments on Chapter 2. Delta Wetlands Alternatives

The statement that the DW project would increase the availability of "high quality water in the Delta for export" (pg. 2-1) is not supported. More water might be available but could result in significant elevations in DOC, THM, SS, DO, chlorophyll, and temperature in Delta channel waters and exports unless DW project discharges are adjusted (Chapter 3C Summary). DW project water is not of high quality since the discharge must be diluted in the channels to have less than significant levels of impact on receiving water quality.

B7-12

While there are two islands established as wetlands to compensate for ecological impacts, there is no compensation for the potential detrimental impacts on drinking water supplies and water treatment from increased DOC and THMFP (pg. 2-1).

# Comments on Chapter 3C. Affected Environment and Environmental Consequences - Water Quality

In the final analysis, the Jones & Stokes predicted impacts and significance on water quality are based on the results of a series of computer model simulations and rough assumptions on the behavior of chemical constituents and hydrodynamics in the Delta. The output from one model or assumptions from a computation serve as input for another model or computation. The limitations and errors of each model are further compounded in subsequent limitations and errors of the next model that is used. The results are presented in a manner as to lead the reviewers into believing that there is great precision and accuracy in the predictive capabilities of each of the models used and in the assumptions. Jones & Stokes assumed measurement errors and modeling uncertainties are about 10 percent of the measured or modeled values (pg.3C-21). Jones & Stokes' reasoning for such a high degree of confidence given to the modeling uncertainties are not explained. We have not yet seen a model with that can be given such a high degree of confidence in results.

The analysis of potential impacts from the DW project discharges on future drinking water TOC and THMFP control are significantly underestimated (pg. 3C-28 Trihalomethane Concentrations in Treated Drinking Water). The current U.S. EPA drinking water THM MCL of 0.100 mg/L was used as the benchmark for comparison (pg. 3C-29). The new proposed THM MCL will lower the limit to 0.080 mg/L by June 1998 and to 0.040 mg/L by year 2002 under the D-DBP (Disinfectants Disinfection By-Products) Rule. If the new rule is considered in the impact analysis, the criteria used by Jones & Stokes to determine significant impacts to drinking water becomes exceedances of 90 percent of the proposed 0.080 mg/L THM standard (72 ug/L) or an increase of 20 percent of the proposed THM standard (16 ug/L) in 1998. Their criteria becomes more restrictive in year 2002 with exceedances of 90 percent of the proposed 0.040 mg/L THM standard (36 ug/L) or an increase of 20 percent of the proposed standard (8 ug/L). Therefore, the negative effect of the discharge upon the ability to meet proposed drinking water standards will become much more significant and frequent in the very near future. The impacts could result in additional treatment costs.

The D-DBP Rule also places restrictions on the formation of haloacetic acids. Haloacetic acids were not discussed or studied in the DEIR/EIS. The proposed MCL for five specified HAAs is 0.060 mg/L by June 1998 and 0.030 mg/L by year 2002.

The impact of increased TOC concentration on the degree of additional removal required by enhanced coagulation under the new rule was also omitted. Depending on the amount of TOC concentration increase caused by the discharge and the resulting source water TOC concentration that occurred, the TOC removal requirements at a water treatment plant could increase by as much as 10 percent (assuming the same water alkalinity).

**B7-14** 

B7-15

B7-16

Jones & Stokes needs to incorporate the future THM, HAA5, and TOC regulations in their environmental impact analysis. Figure 3C-19 showed that monthly THM concentrations under Alternative 1 were simulated to be greater than 90 ug/L only for 1977, and the change in THM concentrations were always simulated to be less than 20 ug/L (pg. 3C-29). The same figure showed monthly THM concentrations under Alternative 1 were simulated to be greater than 72 ug/L (the significance criteria for the proposed 1998 THM MCL) in years 1969,76-79,83-84,89,90-91 and greater than 36 ug/L (the significance criteria for the proposed year 2002 THM MCL) in all years simulated, 1967-91. The change in THM concentrations were simulated to be more than 16 ug/L (year 1998 criteria) and 8 ug/L (year 2002 criteria) in 1977 and 1978. The model simulations show that final THM concentrations under any of the alternatives including the No Project - Intensive Agriculture option will exceed the proposed year 2002 THM standard of 40 ug/L. Therefore, the longevity of the Delta Wetlands Project may be short-lived with respect to not significantly impairing the drinking water quality of Delta exports.

**B7-18** 

DWR does not support the Jones & Stokes recommendation to monitor Delta Wetland DOC discharges and river DOC by UVA-254nm measurements (pg. 3C-28; 3C-30). While there is a correlation between UVA-254 nm values and DOC, the relationships vary seasonally and with location. Since the TOC concentration of source water is regulated under the D-DBP Rule, TOC is the preferred parameter that should be monitored. Recent advances now make field determinations of TOC simple, fast, and without the need for a laboratory. New instrumentation has been tested by DWR for automated remote sensing of TOC in channels and drains for the MWQI program.

**B7-19** 

UVA-254nm measurements within certain DOC ranges may give good approximations of DOC but may not meet the accuracy desired in most regulatory monitoring programs. DWR and other water agencies measure both UVA-254nm and DOC to assess the humic nature of DOC by comparing the specific UV absorbance (UVA-254nm: DOC ratio). Field automated TOC analyzers are commercially available for rapid determinations and are the preferred method for more accurate organic carbon measurements.

B7-20

Mitigation Measure C-6 (pg. 3C-29) and definition of an allowable DW discharge (pg. 3C-30) should be modified with inclusion of the proposed year 1998 and 2002 THM standards. Table 3C-5 should similarly be updated to define the significance thresholds for THM.

### Appendix C1. Analysis of Delta Inflow and Export Water Quality Data

Jones & Stokes concluded that the statistics of the monthly samples were not substantially different from those of the entire set (pg. C1-5; table C1-1). Did the data support the assumption stated on page 3C-21 that the measurement errors and

**B7-21** 

cont'd

modeling uncertainties are about 10 percent of the measured or modeled values? Does the term "not substantially different" mean not statistically different?

#### Appendix C2. Analysis of Delta Agricultural Drainage Water Quality Data

Under the MWQI program, DWR has completed work on commercially available field UVA-254nm and automated TOC analyzers for monitoring Delta drainage and river water. Automated TOC analyzers will be added to existing remote telemetered flow and water quality stations in the Delta if the results from a one-year pilot study are successful (pg. C2-10).

We are not convinced of Jones & Stokes' conclusion that the expected drainage DOC concentration, based on the measured EC value, can be used to estimate the net increase of DOC concentration in each drainage sample (pg. C2-7; C2-10; Summary of Agricultural Drainage Data Analysis). DOC is not conservative when applied to microbially active soils. DOC is a variable complex mixture of organic matter undergoing varying rates of decay. EC is a physical measurement related to a mixture of ionic salts, some that react with soil minerals (e.g, ion exchange, chemical precipitation). Can Jones & Stokes provide references to other studies that have found or used their hypothesized EC to DOC relationship?

Their statement (pg. C2-9) that, "Interestingly, some islands have average drainage DOC concentrations that are less than the values expected based on the average EC increase, suggesting that some of the applied DOC is adsorbed, retained, or otherwise lost from the drainage on these islands" shows that EC and DOC behave dissimilarly and questions the reliability of using measured EC values to estimate net increases in DOC. Organic matter in DOC applied to fields is not conservative. Organic matter is lost through decomposition and photoreactions. Studies of the degradation of organic matter (e.g., peat soils) in the Delta were described on page C3-5. DWR has also estimated DOC loss (applied water DOC mass load greater than drainage water DOC mass load) on mineral soil islands (DWR, 1994).

The soil DOC balance equation in figure C2-1 should add a term for Loss Processes (microbial decay, photoreactivity).

The soil salt balance equation in figure C2-1 should include a term for Net Ion Exchange and Loss from Salt Precipitation Processes.

The relationships among UVA-254nm, DOC, C-THM (TFPC), THM, and other water quality constituents were reported in the annual report of the MWQI program for 1990 (DWR, 1993), and five-year report (DWR, 1994). Depending on the level of accuracy required for THMFP concentrations, simple UVA and DOC measurements may not be preferable to THMFP tests (pg. C2-10).

**B7-22** 

B7-23

R7-24

**B7-25** 

# Appendix C3. Water Quality Experiments on Potential Sources of Dissolved Organics and Trihalomethane Precursors for the Delta Wetlands Project

A fully flooded peat island water storage pilot study was unable to be conducted. Small scale experiments, such as the vegetative decay in barrels, ponded wetland, and soil water extraction tests, provided some valuable information and insight about decaying plant and soil contributions of DOC for a shallow wetland. While we continue to not fully agree with Jones & Stokes on the quality, interpretation, and extrapolation of some of the experimental results, overall, we do agree the efforts were worthwhile in examining water quality changes associated with creating a shallow wetland. It is important to note that these studies were not designed to simulate the proposed full scale water storage island operation. Therefore, it is uncertain as to how well these small scale experiments could predict final water quality conditions in a fully flooded island that will undergo a series of filling, holding, and draining sequences within an organic-rich basin of porous peat soil.

In summary, completion of the Delta Wetlands Project will determine if Jones & Stokes' modeled environmental impacts are accurate in predicting the degree of impact from the proposed discharges on water quality. We are unaware of similar water storage projects on peat islands that can serve as case studies. There are, however, many examples of constructed wetlands in the literature.

#### Flooded Wetland Experiment

The statement (pg. C3-7) that substantial leaching of the peat soil did not occur because some inorganic variables (EC, TDS, sodium, chloride, and bromide) typically increase during soil leaching in agricultural operations is correct only if there was significant salt accumulation in the fields prior to leaching. The condition of the test area on Holland Tract was not reported prior to constructing the wetland. The area may not have had any salt buildup. It may have been leached earlier, not irrigated, or salts may have been removed with the top soil if the wetland area was scraped to create the berms for the ponded area. Therefore, substantial leaching of peat soil cannot be completely ruled out on the sole basis of unobserved salt leaching.

#### Seasonal Storage Experiment

For the same reasons as stated above, the statement (pg. C3-8) that the constant levels of inorganic variables suggest that soil leaching with associated release of salts did not occur during the storage period is incorrect.

Further analysis of the data from the Jones & Stokes' experiments by DWR are contrary to the Jones & Stokes' conclusion (pg. C3-8) that very little, if any, additional release of materials from peat soil leaching will occur during the water storage period. The THM Yield (C-THM divided by TOC) of the Holland Tract wetlands

**B7-27** 

**B7-28** 

experiment, vegetation decay experiment, and peat soil extraction tests were compared. The results are shown in the following table:

THM Yield (ug/mg)

Experiment	Beginning	End
Flooded wetland (10 weeks)	13.5 (11/3/89)	8.2 (1/15/90)
Seasonal water storage (3 months)	5.2 (4/23/90) top 5.3 bottom	7.1 (7/25/90) top 6.2 bottom
Vegetation decay (10 weeks)	8.3;11.2 (2/27/92) 1X 7.8;7.5 2X	10;11 (4/29/92) 1X 8.6;9.1 2X

The THM yield for the peat soil extract 7-day holding time experiments ranged from 6 to 8 ug/mg for surface samples and 4 to 7 ug/mg for bottom samples.

The vegetation decay experiment THM yields were similar to the flooded wetland THM yields. The vegetative decay THM yields were increasing over time in the 10-week experiment but decreasing in the flooded wetland. The THM yields indicate that vegetative decay was the initial major THM precursor source during the flooding of a wetland but peat soil leaching also contributed to lowering the THM yield of the water in the flooded wetland.

During the seasonal water storage period, peat soil leaching appears to become the dominant source of THM yield as decaying vegetative matter is depleted and lost as carbon dioxide to the atmosphere. The bottom sample peat soil extract THM yields were similar to the seasonal storage THM yields. The THM yield data indicates peat soil leaching will occur during the water storage periods of the DW project. There is dissolution of peat soil organic matter and diffusion across the soilwater interface. Peat soil is extremely porous and diffusion processes cause the migration of high DOC pore water to the overlying lower DOC stored water to reach equilibrium. The high solubility of peat independent of saturation holding time was mentioned on page C3-16. The conclusions (pg. C3-20) about the contribution of DOC load in the wetland experiment should be corrected and reflect the above analysis and interpretation by DWR.

Jones & Stokes did not conduct water quality monitoring of the siphons and drains nor flow measurements of applied water to the four project islands to

supplement their pumped drainage volume data to assess the No Project Alternative. For a study of this magnitude and with the opportunity to collect these data during the

B7-29 cont'd

last six years, it is inexcusable for Jones & Stokes to imply the Department as being responsible for collecting their needed data to obtain a direct estimate of DOC from agricultural drainage on Holland Tract or any other island (pg. C3-20).

B7-30 cont'd

**B7-31** 

# Comments on Appendix C5. Modeling Trihalomethane Concentrations at a Typical Water Treatment Plant Using Delta Export

The WTP model for national use underestimates the THMFP of source waters with high bromide concentrations such as Delta waters. Delta waters are in the 90th percentile range in bromide concentrations of U.S. drinking water sources. As stated in the DEIR/EIS, the Metropolitan Water District of Southern California had contracted with Malcolm-Pirnie to develop a new set of equations to compensate for high bromide concentrations in Delta waters (pg. C5-6).

According to MWDSC (Stuart Krasner, pers. comm. 10/95), the predicted relative changes are more important than the absolute THM concentrations results of the original model in assessing the impact of the DW project. Until Jones & Stokes compares the results of the old model to the new model, the validity of the assumption that recent model improvements are not expected to change the impact assessment results as shown in the appendix (pg. C5-6) has not been demonstrated. One of the conclusions stated that the WTP model tended to underpredict THM concentrations because of uncertain chlorine doses and an insensitivity to Br- concentrations and Br-THM formation (pg. C5-10).

The conclusion (pg. C5-10) that "the maximum annual average increase attributable to DW project operations was less than 0.2 mg/L of DOC and therefore less than 4 ug/L of THM, which is less than 4 percent of the MCL for drinking water" should include comparisons to the proposed year 1998 and 2002 MCLs. By year 1998, the predicted THM increase will be less than 5 percent of the 80 ug/L THM MCL. By year 2002, the increase will be about 10 percent of the 40 ug/L standard.

# **Division of Operations and Maintenance**

Project Operations Planning Branch

The nature of flow, water quality, and biological problems in the Delta require vigilant monitoring and, most often, premeditated actions to continue conformity to standards. Such actions currently involve cooperative efforts between the CVP and SWP operation groups. No such coordination, plan, or procedure for addressing these problems with DW are discussed. Stated mitigation measures include monitoring (though not how) and operational adjustments to accommodate "...calculated EC contribution from DW operations." Seldom is any EC value attributable to a specific operation or flow value. Furthermore, many considerations of

the SWP operation accommodate agreements with North Delta Water Agency and South Delta users. These include North Delta EC values and South Delta stage levels. No such consideration is stated in the DW DEIR/EIS. Other requirements include those contained in the '95 WQCP such as minimum outflow (NDOI) and maximum percent of inflow diverted. The equations used to determine compliance with these parameters may have to be modified to accommodate the DW operations, yet no such measures are discussed.	B7-32 cont'd
DW has potential to affect sensitive fish species in the Delta that may indirectly cause SWP impacts on those species to increase. For example, under the "zone of influence" theory, DW increases the potential for Sacramento River fish to stray into central/southern Delta where they may be impacted by SWP/CVP export pumping. Coordination of "adaptive management" due to real-time monitoring under the CALFED process may be difficult.	B7-33
Although the EIR/EIS procedure may not demand a detailed operational procedural plan, review of such a plan is needed before DW impacts on SWP operations can be sufficiently determined. These arguments may be best suited for any water rights hearings for the DW.	B7-34
Additional comments relating to specific pages within the DEIR/EIS follow.	•
Shouldn't future export pumping capacity include North Bay Aqueduct and Contra Costa Canal to define the limits in determining actual exports? p. 2-6	B7-35
Diversions to storage under Alt. 1 & 2 are somewhat optimistic, since flows are assumed to have an even distribution. p.2-6	B7-36
Discharges from storage under Alt. 1 & 2 assume that they can be utilized just because there is "wheeling" capacity in the SWP or CVP export capability. p. 2-6	B7-37
Selling seasonal wetlands water during the month of May would be difficult, since exports are severely restricted. pp. 2-8&9	B7-38
Wheeling of discharges from Alt. 1 & 2 during the months of April and May during dry years would not be feasible, since exports are limited. Table 2-2 shows an average of 12 TAF and 16 TAF for the two months which looks relatively small. But, upon examination of individual dry years (Table A3-7b) there are discharges for wheeling that exceed 1000 cfs and may be difficult to be exported.	B7-39
During the period of mid-December through mid-March the SWP can exceed 6680 cfs when the San Joaquin River is greater than 1000 cfs. pp. 3-5	B7-40

To assume a continuous pumping rate of 10,300 cfs for an entire month is not realistic. Some allowances should be made for plant outages and reasonable flow distribution. pp. 3A-7 & 18	B7-41
If the wet years were eliminated from the discharges for export in Alternative #1, the average discharge for export would be reduced about 80 TAF annually. pp. 3A-14	B7-42
Annual water sales are quoted as \$44-\$55 million annually. This is based on \$200-\$250 per acre-foot and a water yield of 222 TAF per year. Shouldn't the annual sales be based on the discharge from storage (188 TAF) which is water actually sold or exported. Annual water sales would then only be \$38-\$47 million. Buyers would not be paying for evaporation and other losses. pp. 3K-10	B7-43
Instream releases for fish & wildlife are made for both Oroville and Shasta Reservoirs. p. A1-3	B7-44
The SWP 8500 cfs export limit used in DWRSIM allows for uneven flow distribution and outages that could occur at Banks Pumping Plant. p. A2-8	B7-45
Apparently the DeltaSOS does not simulate the Delta the same as DWRSIM in all cases. In some instances additional water is required at Sacramento to satisfy Delta requirements for CU, outflow and export. No estimate is given as to the magnitude (relatively small?) of this "imaginary water" or where it would come from. p. A2-10	B7-46
Why wasn't North Bay Aqueduct included in the simulated SWP and CVP exports? p. A3-3	B7-47
Table A3-4a (Initial DWRSIM exports) + Table A3-4b (DeltaSOS Adjustments) should equal Table A3-4c (DeltaSOS Exports). On a monthly-cfs basis they do, but the annual totals (TAF) do not add up. The total in table A3-4 seems to be in error.	B7-48

#### **Environmental Assessment Branch**

We generally concur with the adverse effects identified in the draft EIR/EIS on water quality from project discharges. However, we have several concerns associated with the proposed reservoirs which need to be addressed with specific management objectives.

The first relates to the mitigation measures for reducing impacts to less-than-significant through "adjustment of DW project discharge based on measurement ... during intended discharge periods and monitoring in channel receiving waters." We concur with the measure that "mitigation monitoring to compare DW project discharge water quality with channel water quality should be required", but it is unclear what

specific activities would link measurement of discharges with reduction of impacts. How would impacts be reduced if given high DOC readings in the stored water repeatedly exceed the "selected significance criterion of allowable change in export DOC" (section 3C-28)? It is not specified how these discharges would be regulated.

B7-49 cont'd

**B7-50** 

Our second concern is regarding the potential impacts caused by rapid growth and die-off algal populations needs to be better addressed. They include:

- Oxygen depletion from increased BOD associated with algal decomposition;
- Taste and odor products, especially geosmin and 2-methylisoborneol (MIB) increases;
- pH increase;
- Algal control additions, i.e., copper sulfate, etc.

#### **DIVISION OF PLANNING**

# Review of Delta Wetlands EIR Impact Analysis Modeling

#### DeltaSOS versus DWRSIM

It is difficult to discern the rationale for the J&S approach to impact modeling. The base condition delta inflow hydrology is provided by DWRSIM studies under 1995 WQCP constraints. DeltaSOS is then used to model operation of the DW project without the ability to account for upstream and downstream reservoir storage and aqueduct capacity (A1-2). The advantage of DeltaSOS appears to be the inclusion of mechanisms for soil moisture, ET, rainfall, applied irrigation, and leach water accounting. This relatively simple capability is necessary. However, the inability of DeltaSOS to simulate reservoir operations would appear to be a much larger disadvantage. It is not clear why J&S did not adopt the public domain DWRSIM program and modify it to handle monthly island water budgets. This would have provided a consistent and more sophisticated tool for identifying incremental impact of the DW project.

### DailySOS limitations

J&S acknowledges the monthly time-step limitation of DeltaSOS and provides daily impact analysis (DailySOS) to give an indication of the differences. However, without a compelling explanation, the DeltaSOS continues to be used for the main impact analysis. It appears that the DailySOS might have been used to greater advantage considering that the goal of the DW project is to capture the peak of flood flows which are low frequency, short duration events.

B7-52

#### No DW Releases to Go To Outflow

The DW project does not include a direct hydraulic connection to the State or federal pumping plants. Despite this, releases from DW for export are assumed to flow in total to the south delta project pumps (Tables A3-9, 12) This is not likely to be a reasonable assumption and should be investigated with hydrodynamics models. Extensive hydrodynamics modeling was conducted. However, no mention is made about the impacts of DW discharges on Delta outflow.

**B7-53** 

#### Take Limits

There is discussion (A4-10, 11) about take limits for endangered fish species and the current difficulty of modeling the limits. Despite the discussion, operations and impacts of the DW project are simulated using DeltaSOS without any consideration of the probable reductions to project capacity due to take limits.

B7-54

#### X2 Equation

There appears to be no basis for solving the Kimmerer-Monismith monthly X2 equation for the "steady-state X2," after which an artificial adjustment is applied to correct X2 for last month's X2. It is not clear why the Original Kimmerer-Monismith monthly equation is not used directly.

**B7-55** 

#### Hydrodynamic Simulation Model Verification

There is no mention of the calibration/verification of the model against flow data. Therefore, it is not possible to know how the model is performing in calculating flow and velocity in the channels. This is the most important factor in driving the advection part of the salinity model.

B7-56

There is no flow split verification of the model at some key locations. This is a very important factor in driving the salinity model.

SWP Pumping Capacity and Pumping Rate (P. 8 of Executive Summary)

The description for "physical export pumping capacity" is misleading and incorrect for the SWP. A statement should be added to explain that Clifton Court Forebay and its intake gates limit the maximum average export capacity to an estimated 8,500 cfs. This value should be used as the maximum average monthly export capacity. With current SWP facilities, exports through Banks Pumping Plant can only reach 10,300 cfs for short periods of time during periods of high Delta inflows.

The description for "permitted pumping rate" is incorrectly stated. The Corps requires a permit for current SWP export pumping at Banks Pumping Plant. This is the existing Permit No. 5820A, which limits the maximum 3-day average pumping rate to 6,680 cfs. This current permit also allows increased pumping at SWP Banks Pumping Plant between December 15 and March 15, as a function of the San Joaquin River flow at Vernalis. During this three-month window the maximum SWP pumping rate can go as high as 10,300 cfs for short periods of time, but the maximum average monthly rate is estimated to be 8,500 cfs. Thus when these maximum SWP export rates are combined with the CVP Tracy Pumping Plant capacity of 4,600 cfs, the combined maximum winter month export limit could reach 13,100 cfs (CVP + SWP). In general all SWP export pumping (current or with proposed facilities) is regulated by Corps permits. Additionally, the ability to fully increase SWP exports to 10,300 cfs with proposed South Delta Improvements will also require a new or modified permit from the Corps.

B7-57 cont'd

#### Cumulative Impacts Analysis

Page A3-13, left side - 4th paragraph.

For the Cumulative Impact studies, this paragraph states that assumptions were the same as for the individual alternatives analyzed, except that SWP Banks pumping capacity was increased to the full 10,300 cfs. This implies that SWP export pumping and deliveries to SWP contractors were maintained at the present 1995 level amounts (2.6 to 3.6 MAF/year) as reported on page A3-2. For cumulative impact analysis a better approach would be to use the projected future level of SWP Contractor request, which total 4.1 MAF/year with no reductions due to large local supplies in wetter years. DWRSIM model studies that have been simulated with these higher demands produce significantly different Delta inflows, exports and outflows; which in turn could alter the proposed operation of the DW project.

B7-58

## Clifton Court Gate Operations

Under the section on "Daily CVP And SWP Operations" (pages A4-7 to A4-9) a paragraph should be added regarding the operation of the Intake Gates to Clifton Court Forebay. Under balanced conditions in the Delta, these gates are opened and closed twice daily on the tidal cycles, and thus control the amount and quality of water that moves to the SWP Banks Pumping Plant. The DW EIR text should describe how the water released from the DW islands will be moved through the Intake Gates, in relation to the tidal cycles and required opening and closing of the gates.

B7-59

#### DeltaSOS model

As indicated on pages A3-3 and A3-5, the DeltaSOS model studies appear to have set all values for X2 outflow, carriage water, Delta inflows, SWP Banks and CVP

Tracy exports, and the WQCP inflow/export ratio criteria using the data resulting from DWRSIM Study 1995c6b-SWRCB-409. These items remain fixed for the model studies of the DW Project alternatives. A more realistic approach should be considered, whereby the effects of diversions and discharges to and from the DW islands on the above items is dynamically evaluated. DWRSIM model study experience has indicated that changes in Delta diversions and exports can at times result in different carriage water requirements, X2 requirements, Delta inflow, and also different amounts for the inflow/export ratio limits.

B7-60 cont'd

#### **DIVISION OF SAFETY OF DAMS**

We have reviewed the DEIR for the Delta Wetlands Project dated September 1995. The DEIR indicates requirements of the Division of Safety of Dams may limit storage capacities and may result in a final storage elevation of less than +6 feet relative to mean sea level. The DEIR does not distinguish if this is the jurisdictional limit of this Division. However, Part 1, Division 3, Section 6004, of the California Water Code indicates that levees in the Sacramento-San Joaquin Delta shall not be considered a dam if the maximum possible water storage elevation of the impounded water does not exceed four feet (+4) above mean sea level.

**B7-61** 

If the projects involve jurisdictional dams, a construction application will be required. All dam safety issues related to the proposed work would have to be resolved prior to approval of the application and any construction activity.

#### **ENVIRONMENTAL SERVICES OFFICE**

#### <u>Hydrodynamics</u>

3B-8 col 1 para 2 For many analyses, a 19-year mean tide is sufficient. However, for many biological issues, the extreme conditions and their frequency which are lost in the averaging process are the most significant in terms of impacts.

**B7-62** 

# Comments on Chapter 3F-Fish Resources

More Information Should be Provided About the Proposed Adaptive Management Strategy for Fisheries: Real-time monitoring in conjunction with fish transport modeling is suggested as a primary adaptive mitigation measure for fisheries (3F-25 through 3F-27). The report does not adequately address the following issues:

**B7-63** 

Who will collect the required data?

The text indicates that adaptive measures will rely on data on the distribution and abundance of a variety of species and life stages. The only data source clearly

identified are SWP and CVP salvage facilities. The project should specify where and how the additional data will be obtained.

Can the data be processed quickly enough to allow adaptive management?

The 1995 Interagency Ecological Program "real-time" monitoring program showed that it may be possible to collect and process data within one to two days. However, the effectiveness of this strategy to reduce impacts for multiple species under different water year types remains unproven. Note that "real-time" operations data would also be required for this effort.

 Can transport modeling be performed quickly enough to allow adaptive management?

B7-63 cont'd

Even if all of the necessary data can be collected, it is unclear whether the fisheries and operations data can be rapidly processed and formatted to run transport models. Additional time must be allowed for interpretation of model results and decision- making by managers.

Is transport modeling useful for all of the species of interest?

Transport modeling remains an untested tool to reduce impacts in the Estuary. The ability of transport modeling to predict the movements of strong swimmers such as outmigrating salmon smolts is particularly questionable.

A Potentially Major Project Impact was Not Addressed: Fish screens may indeed significantly reduce entrainment losses. However, the construction of fish screens and other project features such as docks and outlet siphons is likely to attract predators, creating feeding stations that increase the losses of resident and migrating species. This concern is greatest near intakes, where prey would become concentrated in the channels as water is removed from screened diversions and "reverse flows" continue to pull more prey into the area. This effect could create a highly efficient feeding station for predators. Impacts are likely to be greater for species such as splittail and delta smelt which frequently rear in the Delta to adulthood. These concerns were not addressed in the report.

**B7-64** 

More Details are Needed about Mitigation of Fisheries Through Habitat Creation: The focus of the mitigation program for this project is the creation of migrating waterfowl habitat. However, some of the most significant impacts are to fisheries. Although the report states that the project will use avoidance to the extent possible, there will be some unavoidable impacts during construction and project operation. The text states that habitat replacement would be used at a ratio of 3:1 (3F-15, Col. 2, Para 2-3). However, the report also notes that specific habitat parameters have not yet been defined for delta smelt and splittail, two of the species of greatest

concern (3F-15, Col. 1, Para 4). Unless habitat for these species can be identified, it is unclear how habitat replacement would be conducted. Additional details are needed about how habitat impacts will be identified and mitigation will be established.

Although it may not be possible to locate the specific habitat areas, it appears that vegetated, shallow water habitat is important for delta smelt and splittail. Possible methods to create this type of habitat include:

B7-65 cont'd

- 1. Create additional fisheries-accessible shallow water areas outside the project area.
- 2. Construct internal levee walls within a habitat island, then breach a portion of the outside levee walls. This would create tidally-influenced habitat on the island. Portions would be graded where possible to create shallow water habitat.

Fisheries Life History: Chapter 3F and Appendix F1 provide a good, balanced overview of the biology of several fish species including striped bass and American shad. However, the sections on delta smelt and splittail need to be updated based on new findings about these species. The most substantial changes are required in the splittail section—specific comments are provided in a following section of this review.

**B7-66** 

Fisheries Impact Modeling: A number of the methodologies used to evaluate fisheries impacts appear to be innovative and deserve greater detail. Insufficient information is provided in Appendix F-2 for several key analytical techniques. Examples include modeling of the effects of operations on winter-run migration timing and modeling how agricultural and habitat island diversions affect winter-run survival.

**B7-67** 

The Analysis of Estuarine Habitat for Delta Smelt and Striped Bass is Questionable: A key impact analysis method in the EIR/EIS is the calculation of estuarine habitat area indices for different alternatives. However, the optimal salinity range for delta smelt and striped bass was apparently calculated from egg and larval survey results. This is survey primarily catches very early life stages (<20 mm) which probably have little ability to actively select salinity ranges. A more appropriate approach would have been to use townet or midwater trawl results, which catch larger fish.

**B7-68** 

Algal Blooms: The possibility of algál blooms on the project islands is mentioned relatively briefly (3F-16, Col. 1, Para. 6) with respect to dissolved oxygen. However, algal blooms have a broader range of impacts. Among the possible benefits, the food chain may be enhanced if blooms of the appropriate species of algae and associated zooplankton grazers are released into the Delta. This effect is listed as beneficial (Appendix F-2, Page 5-17). Alternatively, nuisance blooms of

algae (eg Melosira) can potentially reduce the feeding efficiency of zooplankton, clog screens, and create taste and odor problems. We recommend that an algal bloom management plan be prepared to deal with this contingency.

B7-69 cont'd

Fish Screen Issues: Fish screen design criteria and guidelines are applicable to the proposed diversions through the Department of Fish and Game and the National Marine Fisheries Service (Southwest Division). Although these criteria address primarily the needs of anadromous fish, they are in general applicable to the screening needs at this site. The U.S. Fish and Wildlife Service has addressed interim criteria for delta smelt in terms of approach velocity needs that differ from the general criteria of DFG and NMFS. Consultation with the USFWS on these issues should be addressed during the fish screen design review. Although much of the applicable criteria for screening is seemingly mandated, it is the underlying objective of fish protection that really must be applied to the intake design. With this in mind, a screen facility can be designed that may not meet all criteria, but still be considered acceptable to the fishery agencies. Intake screens should take into account the best available technology and be protective of a variety of fish species and lifestages in addition to those of threatened or endangered status. The present screen design will offer limited protection to larval sized fish for instance, but a fishery agency may determine protection for that lifestage is necessary. With all alternatives, operation of any fish screening facility is integral to the given design

The fish screen intake design presented is general in nature, but sufficient in detail to comment on. Based upon our interpretation of the existing criteria objectives, the design will require substantial modifications to meet fishery needs and suit practical needs and considerations. The four intake facilities would combine to make one of the largest full physical exclusion screens in the world. Screen systems of this magnitude require additional considerations due to the concentration of potential fishery activity at one location. Consideration should include predator control features, hydraulic control, debris and cleaning systems, maintenance, fish passage measures (such as a bypass and collection system to remove fish from the area by some means), and additional operational procedures.

A large series of individual screen units, that may be adequate if installed at a site on their own, may not be suitable when concentrated together. The present configuration simply lacks the necessary hydraulic conditions during diversions that are necessary for this type of system. Existing fish screen criteria requires sweeping flows (and velocities) by a screen to reduce fish exposures and to pass them (and debris) away from the diversion. During peak diversion, flows will be drawn from the surrounding channels and directed predominately into the diversion screens. These conditions occur during peak high slack water periods and could last for several hours. Fish may be drawn progressively into this "dead end" area, creating a high concentration of juvenile and larval fishes that may be drifting in response to the flow. Increased predator opportunities may result which must be considered into the

overall efficiency of the facility. At the SWP's J. E. Skinner Fish Protective Facility, for instance, it has been determined that predation is one of the most significant losses at the facility. Predatory fish may be able to take advantage of the DW intake facility's structures and hydraulic flow inconsistencies and prey on the concentrations of smaller fishes in the area. Smaller fish may be trapped and concentrated in this area due to the lack of bypass past the screens.

Debris concentrations may also pose some problems with the present design. A cumulative effect could occur during periods of maximum diversion due to poor sweeping flows through the area. Maintaining screens is important to efficient diversion operations (reduces head losses) and in reductions in fish injury. Debris accumulations can also result in non-uniform flows through the screens which may exceed the given velocity criteria. If sweeping flows through the area are insufficient, or it is not continuously removed, this requirement may not be met. Debris removal in this situation may require skimmers, vertical rakes, or other means to physically remove the debris out of the water. DFG requires screens to be capable of being "continuously" cleaned at up to five minute intervals. It further stipulates that unless this requirement is met, screen area should be increased four fold. Automated cleaning systems, such as hydraulic backwash or brushing systems should be considered to supplement the method proposed of lifting the screens out of the water.

cont'd

**B7-70** 

From a maintenance point of view, it is desirable to have the intakes consolidated at two sites per island, however due to the concern raised, alternative intake designs which include some type of fish collection facility may be appropriate. Alternatives to explore include lowering the screen approach velocity so prolonged exposure and fish impingement is alleviated or to reduce the localized screen exposure area by spreading the screens around the island.

Page 3F-5, Column 2, Para 1. Contrary to the assertion that net reverse flows transport striped bass eggs and larvae to the SWP and CVP facilities, particle tracking studies show that QWEST is a poor indicator of entrainment risk (DWR/USBR 1994). One reason for this observation is that tidal flows in this region are dramatically higher than QWEST and probably have an overriding impact.

**B7-71** 

Page 3F-6, Column 1, Para 4. The statement that larval smelt are carried downstream to a location near the entrapment zone (2 ppt) needs to be clarified. It appears that the abundance of delta smelt peaks upstream of the entrapment zone at approximately 0.5 ppt (DWR/USBR 1994). However, the distribution of delta smelt is often broad and large numbers occur upstream and downstream of this point in all water year types. They frequently maintain a broad distribution through adulthood. The text needs to point out that delta smelt are not necessarily concentrated in one narrow salinity band.

Page 3F-6, Column 2, Para. 2. The comment that entrainment risks for smelt are lower in Suisun Bay is accurate. But this does not necessarily mean that Suisun Bay has "improved habitat conditions". We are not aware of any documentation showing that smelt prefer this particular region, only that they prefer a range of salinities which may occur in many geographical locations. Indeed, neither the smelt midwater trawl or townet index are correlated with the proportion of the population located in Suisun Bay. Moreover, the townet survey results show that, on the average, the Delta contains the highest proportion of the smelt population. The possible habitat value of the Delta should therefore not be underestimated.

**B7-73** 

Page 3F-7, Column 1, Para 3. The distribution of splittail presented is incorrect. Again, the authors should review DWR (1995). Also, recent Interagency Ecological Program sampling shows that substantial numbers of splittail are present far

B7-74

upstream of the Delta in both the Sacramento and San Joaquin systems in all months of the year. They are clearly not largely confined to the estuary.

Page 3F-16, Col. 2, Para. 4. It is correct that "most juvenile salmon do not migrate along the Old and Middle River pathway", but this route remains a corridor for San Joaquin salmon. Increased water temperatures from DW operations may pose

**B7-75** 

additional risks to this increasingly rare race of salmon, particularly at localized discharge points.

new risk.

Page 3F-23, Column 3, Para. 3. The text states that splittail would be efficiently screened by DW diversions. What is the basis for this statement? We are not aware of any species-specific screen criteria for splittail. This is an important issue as exceptionally large numbers of juvenile splittail were observed in the San Joaquin system in 1995—new diversions in this area such as DW could pose an important

**B7-76** 

Page 3F-25, Column 1, Para. 2. Real-time monitoring in conjunction with fish transport modeling is suggested as an adaptive mitigation measure to reduce entrainment of San Joaquin and Mokelumne salmon. It is highly questionable that fish transport modeling will be a useful tool to predict entrainment risks for outmigrating salmon. They are strong, very active swimmers, not "particles". Moreover, smolts often move relatively fast through the system—it is doubtful that data obtained from such a monitoring exercise could be processed and input into a transport model in sufficient time to respond.

B7-77

Page 3F-26, Column 1, Para. 2 and 5, and Page 3F-27, Columns 1-2. Adaptive management based on field measurements and transport modeling is suggested as a means to reduce entrainment of striped bass, delta smelt and longfin smelt larvae. It is unclear where the data necessary to achieve this would come from or the time scales required. The Interagency Ecological "real-time" monitoring program in 1995 is

perhaps the sort of data that would be useful for such an effort, but there is no guarantee that this type of monitoring will occur each year in the future. The feasibility of such an adaptive management strategy remains unproven—it is still questionable whether "real-time"data can be collected, processed, then input into a transport modeling studies fast enough to provide an acceptable response time.

B7-78 cont'd

Page 4-10, Column 1, Para. 2. It appears that the abundance of delta smelt peaks upstream of the entrapment zone at approximately 0.5 ppt (DWR/USBR 1994). However, the distribution of delta smelt is broad and large numbers occur upstream and downstream of this point in all water year types. Also, the statement that smelt have been absent from Suisun Bay since the recent 6-year drought is incorrect. Smelt were consistently caught in this region in the two wet years (1993 and 1995) following the drought.

B7-79

Page 4-14, Column 1, Para. 2. The conclusion that the midwater trawl is the most accurate index of splittail abundance is questionable. Through 1992, less than 500 individuals were caught in the history of the survey. Also, the survey does not sample most of the important upstream habitat. The authors should read DWR/USBR (1994) for a review of the strengths and limitations of each of the major surveys.

B7-80

Page 4-15, Column 1, Para. 4. The salvage data are contrary to the conclusion that longer residence time in the Delta increases entrainment loss of juveniles. Residence time is greatest in dry years, yet salvage levels (total number and salvage/AF) are lowest during these periods (DWR/USBR 1994).

B7-81

Page 5-11, Column 2, Para. 2. The Variable Migration Timing analysis is very confusing. We are not familiar with this type of analysis or how the results should be interpreted. For example, it is unclear whether the simulated winter run migration rate for February (12-53 percent) is positive, negative or neutral. More details need to be provided about this analysis—Appendix A is not an adequate description.

B7-82

Page 5-11, Column 2, Para. 4 through Page 5-12, Column 1, Para. 3. The analysis of how agricultural and habitat island diversions affect winter run mortality indices is also poorly explained. Based on the description in Appendix A, the mortality index is affected by two operations factors: SWP + CVP exports and cross-Delta flow. It is unclear how agricultural and reservoir island diversions were integrated into this analysis.

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Page 5-14, Column 2, Para. 1. The assumption that the DW facilities are unlikely to be located in preferred spawning or rearing habitat of Sacramento splittail needs to be reevaluated. Fisheries monitoring in 1995 showed that the San Joaquin system may used extensively for spawning and rearing.

**D7 93** 

#### **California Department of Water Resources**

B7-1. The Delta Wetlands Project would not be operated in a way that affects DWR water rights or SWP operation. The DeltaSOS simulations of Delta Wetlands Project operations for the 1995 DEIR/EIS and 2000 REIR/EIS were based on DWRSIM results, which incorporate operations of the SWP. DeltaSOS determines when there is surplus water available only after maximum possible SWP and CVP exports are simulated to have been satisfied. As described in Chapter 2 of the 1995 DEIR/EIS under "Coordination with Water Rights, Delta Standards, and Fish Take Limits"(page 2-18 of FEIS Volume 1), permits granted by the SWRCB would require that project diversions not interfere with the diversion and use of water by other users with riparian or prior (senior) appropriative rights. When DWR's Division of Operations and Maintenance and USBR's Central Valley Operations Coordinating Office (CVOCO) designate the Delta condition to be in balance, all Delta inflow is determined to be required to meet Delta objectives and satisfy diversions by senior water right holders and Delta riparian users. Therefore, when the Delta is in balance, additional water would not be available for diversion by the Delta Wetlands Project. When DWR and CVOCO determine that the Delta condition is in excess, the Delta Wetlands Project could be allowed to divert available excess water for storage on the reservoir islands. The daily quantity of available excess water would be estimated by DWR and CVOCO according to their normal accounting procedures.

Since this comment was provided, DWR and Delta Wetlands have entered into a stipulated agreement affirming the seniority of DWR's water rights; USBR and Delta Wetlands also entered into a similar agreement. These agreements are described briefly in Chapter 2 under "Stipulated Agreements" (see page 2-21 of FEIS Volume 1) and summarized in Appendix A of the 2000 REIR/EIS. The timing and quantity of surplus water would be a joint determination of SWP and CVP operations staff. The FOC include a diversions measure to limit the fraction of the surplus water that can be diverted by Delta Wetlands to 90% in August through January, 75% in February and July, and 50% in March and June.

There may be some potential Delta conditions where previous Delta Wetlands operations would change the Delta outflow or X2 position sufficiently to indirectly influence SWP or CVP operations. However, the several specific limits placed on Delta Wetlands operations in the FOC and in these general stipulated agreements reduce the likelihood of these potential indirect effects. With daily accounting of Delta Wetlands operations and other Delta conditions, it should be possible to isolate any such effects and prevent Delta Wetlands from interfering with SWP or CVP operations.

**B7-2.** See response to Comment B7-1 regarding Delta Wetlands Project operations and senior water right holders. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for information on the protections provided to aquatic species and habitat by the federal and state biological opinions, which were issued after the date of this letter.

B7-3. The 1995 DEIR/EIS describes the Interim South Delta Program in Appendix 2 under "Related Agreements, Programs, and Studies" (see page 2-9 of Appendix 2), which provides a context for analyzing the cumulative effects of the Delta Wetlands Project. The cumulative impact analysis presented in the 1995 DEIR/EIS assumed that the Delta Wetlands Project would not interfere with water operations under the Interim South Delta Program. The Delta Wetlands Project would only divert water available beyond that required by the SWP and the CVP, including the increased SWP pumping capacity proposed under the South Delta Program.

To assess cumulative impacts, DeltaSOS simulations were performed for operations that would be consistent with the 1995 WQCP, but allowing for SWP export pumping at the full physical capacity of 10,300 cfs for Banks Pumping Plant as proposed under the Interim South Delta Program. Based on these simulations, the Delta Wetlands Project would operate in fewer years under cumulative conditions than under existing conditions because of limited availability of water for diversions in some years. Because of greater export pumping capacity, however, greater Delta Wetlands exports were simulated in several years. The Delta Wetlands Project would comply with all applicable Delta standards and operating criteria that were assumed under cumulative conditions as these occur with future development of Delta facilities. The 2000 REIR/EIS assessments were based on these same assumptions.

Additionally, the Interim South Delta Program would control water levels and flow in south-Delta channels to maintain higher low-tide levels. Because the Delta Wetlands Project diversions would occur during high-flow periods, water levels in the south Delta during low tides would not be affected substantially by Delta Wetlands Project diversions.

- B7-4. The commenter is referring to information in the 1995 DEIR/EIS that was augmented by the 2000 REIR/EIS. Chapter 4 of the 2000 REIR/EIS (see Chapter 3C of FEIS Volume 1) and Appendix G of the 2000 REIR/EIS presented a new analysis of DOC loading from peat soils and resulting THM levels in the context of revised EPA standards for DBPs. See Master Response 7, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts".
- **B7-5.** See Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program".
- B7-6. Delta Wetlands' levee designs would need to be approved by the DSOD if the levees were intended to impound water to a level above 4 feet mean sea level. Part 1, Division 3, Section 6004 of the California Water Code states that "the levee of an island adjacent to tidal waters in the Sacramento–San Joaquin Delta, as defined in Section 12220, even when used to impound water, shall not be considered a reservoir if the maximum possible water storage elevation of the impounded water does not exceed four feet above mean sea level, as established by the U.S. Geological Survey 1929 Datum". If Delta Wetlands' final design for its levees met California Water Code criteria for dams, the levees would fall

under DSOD jurisdiction and would be subject to DSOD design review and permit approval.

- B7-7. The commenter is referring to information in the 1995 DEIR/EIS that was augmented by the 2000 REIR/EIS. Chapter 4 of the 2000 REIR/EIS (see Chapter 3C in Volume 1 of this FEIS) and Appendix G of the 2000 REIR/EIS present a new analysis of DOC loading from peat soils and resulting THM levels in the context of revised EPA standards for DBPs. See Master Response 7, "Analysis of Effects of the Delta Wetlands Project Effects on Disinfection Byproducts".
- B7-8. The relationships between water quality parameters analyzed in the 1995 DEIR/EIS are fully discussed in Appendices C1, C2, and C3. DOC is assumed to behave as a conservative variable during storage in agricultural soil water and on Delta Wetlands' reservoir islands. As described in Appendix C2 under "Delta Agricultural Dissolved Organic Carbon Budget" on pages C2-5 and C2-6, measured electrical conductivity (EC) was used with the DOC:EC ratio for applied irrigation water to estimate the DOC concentration of applied water and the DOC concentration of drainage water that would be expected without additional sources of DOC. The difference between this estimate and the observed DOC concentration of drainage water was then calculated. The result provides an estimate of the fraction of the drainage DOC originating from various sources. Use of this method is necessary because direct measurements of applied-water DOC and drainage flows are not available. This method is described in the 2000 REIR/EIS also, beginning on page G-2 of Appendix G.
- B7-9. The results of the Holland Tract wetland experiments are described on pages C3-7 and C3-8 and conclusions are described on page C3-8 in Appendix C3. The determination that peat soil leaching contributed minor amounts of TOC to the water in the flooded wetlands was based on the rate at which TOC loading was observed to take place, as well as on the lack of change in concentrations of inorganic variables. The TOC loading resulted from two sources: immediate decay of surface material (vegetation) and ongoing (continued) peat soil leaching. The experiments showed a major contribution of TOC in the first week and only a small ongoing contribution, indicating that vegetation decay was the major contributor of TOC.

The DOC-loading estimates used in the 1995 DEIR/EIS were augmented with information from experimental measurements of DOC loading that were made by DWR after the 1995 DEIR/EIS analysis was completed. Chapter 4 of the 2000 REIR/EIS (see Chapter 3C of FEIS Volume 1) reported the results of the DWR Special Multipurpose Applied Research Technology Station (SMARTS) experiments, which were designed to observe and quantify relationships between the peat soil and DOC concentrations in standing water overlying the peat soil. The results provided a range of assumptions about DOC loading that were used in the impact analysis. The section "California Department of Water Resources Special Multipurpose Applied Research Technology Station Studies" in Chapter 4 of the 2000 REIR/EIS (see page 3C-55 of Chapter 3C of FEIS Volume 1) describes the measurements and application to the evaluation of Delta Wetlands Project effects.

**B7-10.** The comment refers to the discussion of Mitigation Measure C-5, which requires measuring DOC concentrations in water stored on the project islands and in Delta channels and, when necessary, restricting discharges to control project effects on DOC levels in exports. The WQMP negotiated by Delta Wetlands and CUWA requires similar monitoring. Using field automated TOC analyzers may be an excellent way to obtain daily DOC measurements. Mitigation Measure C-5 has been revised to include this suggestion. On page 3C-32 of Chapter 3C of FEIS Volume 1, the last paragraph of Mitigation Measure C-5 has been changed as follows:

The DOC measurements should be obtained using the best available monitoring equipment (which may now include field automated TOC analyzers) or could be obtained through conversion of field measurements of UVA using known relationships with DOC concentrations (Appendix C1, "Analysis of Delta Inflow and Export Water Quality Data", and Appendix C2, "Analysis of Delta Agricultural Drainage Water Quality Data").

On page 3C-33 of FEIS Volume 1, the first sentence of the first full paragraph is revised as follows:

The DOC measurements should be obtained using the best available monitoring equipment (which may now include field automated TOC analyzers) or could be obtained from the relationship between field measurements of UVA and DOC concentrations (see Appendix C1, "Analysis of Delta Inflow and Export Water Quality Data").

- **B7-11.** The 1995 DEIR/EIS analysis consistently employed a combination of field measurements and assumed relationships in modeling; assumptions were formulated only when data were unavailable. The impact assessment methodology recognized that both field data and modeling have uncertainty (much of the field data have 10% uncertainty). The recommendation for ongoing monitoring of water quality variables proposed in Mitigation Measures C-1 through C-7 was based on the assumption that actual values need to be observed so that Delta Wetlands Project effects on water quality variables during actual project operations can be determined.
- **B7-12.** The statement on page 2-1 of the 1995 DEIR/EIS (page 2-1 of FEIS Volume 1) referred to by the commenter is part of the project purpose as defined by the applicant.

The water quality impact assessment was designed to evaluate changes in the quality of water that would result from Delta Wetlands Project operations. Significant water quality effects could temporarily result from project operations; the mitigation measures recommended in the NEPA and CEQA impact analysis were designed to address these effects. The ongoing monitoring recommended in Mitigation Measures C-1 through C-7 (similar to National Pollutant Discharge Elimination System [NPDES] discharge monitoring) would determine the levels of water quality variables; limiting Delta Wetlands discharges when measurements show the levels to be unacceptable would ensure that

project discharges would not significantly affect export water quality. In addition, the WQMP negotiated by Delta Wetlands and CUWA calls for similar monitoring and adjustment of operations to prevent significant water quality impacts and ensure the quality of water discharged by Delta Wetlands.

**B7-13.** It is unclear whether the commenter is referring to compensation for DOC and THM impacts resulting from habitat island discharges or resulting from project discharges in general.

Under the proposed project, Delta Wetlands would divert water onto the habitat islands to provide the water necessary for implementing the HMP. Diversions and discharges of water to and from the habitat islands would not differ substantially from existing agricultural practices. Because a large portion of the habitat islands would remain in agricultural crops, it is assumed that the DOC concentrations of habitat island discharges would be similar to those of current agricultural drainage. Discharge from the habitat islands would account for a very small proportion of water exported from the Delta; therefore, if DOC loading on the habitat islands were found to be greater than under existing agricultural practices, the resulting effect on export DOC concentration would be extremely small.

Implementation of the mitigation measures presented in Chapter 3C would prevent significant water quality effects resulting from Delta Wetlands Project operations. See response to Comment B7-12 for more information.

- **B7-14.** The commenter is referring to a statement about 10% uncertainty in modeled values on page 3C-21 of the 1995 DEIR/EIS (page 3C-23 of FEIS Volume 1, Chapter 3C) under "Measures of Potential Water Quality Impacts and Criteria for Determining Impact Significance". The statement is part of the explanation for the significance criteria used in the water quality impact analysis; it was not intended as a statement of the degree of accuracy or precision of the modeled results. The text explains that because measurements and the model uncertainty error are *at least* 10%, a 10% change was allowed before an impact would be considered significant. The model assumptions and level of uncertainty are appropriate given current measurements and understanding of Delta conditions. See also response to Comment B7-11.
- **B7-15.** The commenter is referring to information in the 1995 DEIR/EIS that was augmented by the 2000 REIR/EIS. See Master Response 7, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts".
- **B7-16.** Formation of haloacetic acids is a function of the bromide and DOC concentration but is strongly dependent on the treatment process employed. Also, there is no available model for estimating the formation of haloacetic acids. The 1995 DEIR/EIS and 2000 REIR/EIS analyses therefore focused on changes in bromide and DOC concentrations as the most important indicators of potential project effects on supplies of treated drinking water.

- **B7-17.** See Master Response 7, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts".
- B7-18. New standards for THMs were discussed in Chapter 4 of the 2000 REIR/EIS under "Changes in Disinfection Byproduct Rules" (see page 3C-64 in Chapter 3C of FEIS Volume 1). See also CUWA's comments on the 2000 REIR/EIS (Comment R4-7) regarding likely revisions to the Stage 2 THM standard. New standards for THM, haloacetic acids, and TOC would require treatment plants that supply water to municipal users to modify treatment (e.g., eliminate prechlorination), which will reduce THM concentrations. As indicated in Master Response 7, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts", the analysis of project impacts considered Delta Wetlands' proportional contribution to THM and other DBPs. More-stringent future standards would lower the baseline, but the relative contribution of Delta Wetlands Project operations to THM precursors would remain the same.
- **B7-19.** Use of field automated TOC analyzers may be an excellent way to obtain the daily DOC measurements recommended in the mitigation measure. See response to Comment B7-10.
- **B7-20.** Bromide and DOC concentrations remain the proper variables for regulating Delta Wetlands Project operations regardless of THM standards, which may change. The 1995 DEIR/EIS and 2000 REIR/EIS analyses therefore focus on changes in bromide and DOC concentrations as the most important indicators of potential project effects on supplies of treated drinking water. The significance threshold for THM was updated in the water quality impact assessment in the 2000 REIR/EIS. See Master Response 7, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts".
- **B7-21.** Single monthly measurements were used to summarize the available data for convenience of analysis and simplification of presentation. No statistics other than averages were computed. The variability of sample values was not directly evaluated for these data.
- B7-22. DOC was assumed to be conservative for purposes of impact assessment. The assumption that DOC in soils behaves as a conservative parameter allows for an estimate of the additional source of DOC. As described in response to Comment B7-8, measured EC was used with the DOC:EC ratio for applied irrigation water to estimate the DOC concentration that would be expected if DOC is conservative without additional sources of DOC. The difference between this estimate and the observed DOC concentration was then used to estimate the fraction of the drainage DOC originating from various sources of DOC.
- **B7-23.** There are no measurements of a complete Delta island DOC mass budget. It is therefore necessary to use indirect methods to estimate DOC loading. See response to Comment B7-8.
- **B7-24.** Figure C2-1 does have a DOC loss term for soil, which is labeled "sink DOC" (the modeling term referring to losses in a term).

- **B7-25.** Net ion exchange and loss from salt precipitation processes may occur within the soil, but Figure C2-1 refers only to the net balance between applied salt, drained salt, and salt remaining in the soil.
- **B7-26.** Time and costs may also be factors that govern monitoring methods. Measurements of trihalomethane formation potential (THMFP) require 5 days and may be costly (e.g., \$500 per test); these factors may make such measurements impractical for operational monitoring purposes. However, use of the field automated TOC analyzers suggested by DWR (Comment B7-10) may be an excellent monitoring method.
- **B7-27.** These comments refer to the water quality experiments conducted for the Delta Wetlands Project. During the water right hearing for the Delta Wetlands Project and in comments on the 1995 DEIR/EIS, the estimates of DOC loading on the Delta Wetlands islands under agricultural, reservoir, and wetland habitat conditions were debated at length. One element of this debate was the validity and application of the results from the experiments described in Appendix C3 of the 1995 DEIR/EIS. The 2000 REIR/EIS presents a revised analysis of potential project effects on DOC that uses a broader range of DOC loading estimates than that used in the 1995 DEIR/EIS.

The water quality experiments conducted to support the Delta Wetlands Project impact analysis provide information for the impact assessment; with the monitoring recommended in Mitigation Measures C-1 through C-7, however, actual project effects could be compared with predictions based on these small-scale experiments, and project operations could be based on actual measurements. See response to Comment B7-9 for information about the incorporation of results of the SMARTS experiments into the 2000 REIR/EIS assessment of DOC loading rates.

- B7-28. The commenter may be correct; there may have been insufficient information available to conclude what the source of salts and DOC were in the experiment. However, the 2000 REIR/EIS supplements the results of this experiment with other estimates of DOC loading from peat soils. Chapter 4 of the 2000 REIR/EIS (see Chapter 3C in FEIS Volume 1) provided an updated evaluation of potential project effects on DOC concentrations in Delta exports based on a wide range of values for potential DOC loading from the reservoir peat soils.
- **B7-29.** The seasonal storage experiment started with ponds where vegetation had decayed. For a period of 3 months, DOC and salt concentrations did not increase, suggesting that the peat soil leaching, which continued for those 3 months, was not sufficient to increase concentrations substantially.

An impact assessment should be based on the combined results of any water quality experiments. The impact assessment presented in Chapter 3C of the 1995 DEIR/EIS was based on such a combination of experimental results. The impact assessment in the 2000 REIR/EIS (see FEIS Volume 1, Chapter 3C) was based on these results and the additional estimates of DOC loading obtained from the results of DWR's SMARTS

experiments and from testimony at the 1997 water rights hearing. The 2000 REIR/EIS impact analysis used a range of DOC loading rates to reflect the uncertainty in interpretation of available information.

The recommendation for ongoing monitoring of water quality variables proposed in Mitigation Measures C-1 through C-7 is based on the assumption that actual values under project operations would need to be observed for effects to be described most accurately and, if necessary, mitigated during project operations. Additionally, the Delta Wetlands Project WQMP calls for similar monitoring and adjustment of operations to prevent project effects on DOC (see the Delta Wetlands–CUWA agreement in the Appendix to the Responses to Comments).

- **B7-30.** Jones & Stokes is confident in the agricultural drainage measurements being conducted by DWR on the four islands; these measurements were supplemented only to obtain estimates of source loads. DWR's simultaneous measurements of drainage flow and drainage concentration from Twitchell Island have further enhanced the data available for assessing the contributions of Delta water quality variables in discharges from Delta islands. These data are discussed in Appendix G of the 2000 REIR/EIS.
- B7-31. The possibility that the water treatment plant (WTP) model underestimates the production of brominated THM species was fully discussed in Appendix C5 of the 1995 DEIR/EIS. Appendix G of the 2000 REIR/EIS compared the revised THM equation with the original THM equation; see "Calculations Using the Malcolm Pirnie Equation". The revised equation is more sensitive to a change in bromide but less sensitive to a change in DOC. The 2000 REIR/EIS also evaluated impacts of the predicted changes in THM concentrations using the new THM standards (see Chapter 3C of FEIS Volume 1).

See Master Response 7, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts", for a description of the findings of the NEPA and CEQA impact analyses, proposed mitigation, and protection provided by the Delta Wetlands Project WQMP.

- **B7-32.** The stipulated agreements with DWR and USBR described in Appendix A of the 2000 REIR/EIS ensure that Delta Wetlands operations will not interfere with CVP or SWP operations or cause a violation of standards. Coordination of monitoring and operations would most likely occur through the CALFED Ops Group and a daily exchange of Delta flow and water quality information available from DWR and USBR. Monitoring required by the FOC and the WQMP support this exchange of data and coordination with DWR and USBR. See responses to Comments B6-49 and B7-1 for more information.
- **B7-33.** Chapter 3F of the 1995 DEIR/EIS and of FEIS Volume 1 analyzes the effect of Delta Wetlands Project operations on entrainment of Delta fish at the SWP and CVP pumps. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for information on the protections provided to aquatic species and habitat by the federal and state biological opinions.

- **B7-34.** Since this comment was submitted, Delta Wetlands' operating parameters have become more defined through incorporation into the project description of the FOC and terms of stipulated agreements between Delta Wetlands and DWR, USBR, and other parties. See Appendix B, "Delta Wetlands Project Final Operations Criteria", of the 2000 REIR/EIS.
- **B7-35.** North Bay Aqueduct diversions are not included in the definition of Delta exports used to determine the E/I ratio in the 1995 WQCP; therefore, they were not included in the definition of future export pumping capacity on page 2-6 of the 1995 DEIR/EIS (see page 2-7 of FEIS Volume 1). However, North Bay Aqueduct pumping is calculated similar to other in-Delta diversions and does affect the calculation of net Delta outflow, which is regulated under the 1995 WQCP.
- **B7-36.** Monthly simulations of operations (using DWR's model DWRSIM and USBR's model PROSIM) are currently the best available tools for estimating Delta inflows and upstream operations. DeltaSOS, the monthly operations model used to conduct impact assessment of the Delta Wetlands Project, uses the initial water budget developed from results of simulations performed by DWR using DWRSIM. The impact assessment performed for the 1995 DEIR/EIS is therefore consistent with the currently available assessment models and with current practice. Actual daily operations of the Delta Wetlands Project would be based on daily Delta conditions and ongoing monitoring and would differ from the DeltaSOS results based on monthly average conditions.
- **B7-37.** Assumptions used for the 1995 DEIR/EIS impact assessment included the assumption that Delta Wetlands Project discharges would be allowed any time that export capacity exists at the SWP and CVP pumps. This assumption allowed for evaluation of the maximum possible adverse project impacts, but may have resulted in overstatement of the water supply benefits. The 2000 REIR/EIS analysis included a scenario in which Delta Wetlands discharges were limited by south-of-Delta delivery deficits.
- **B7-38.** Water diverted onto reservoir islands for shallow-water management would be subject to the same discharge restrictions as water diverted onto the reservoir islands for storage. The FOC included in the federal and state biological opinions for the Delta Wetlands Project include several restrictions on Delta Wetlands discharges in April and May, including prohibition of all discharges from Webb Tract. Consequently, the monthly simulations of project operations performed for the 2000 REIR/EIS show no Delta Wetlands discharges for export during these months for any of the years in the 73-year simulation.
- **B7-39.** See response to Comment B7-38.
- **B7-40.** The summary statement referred to by the commenter at the end of the next to last paragraph on page 3-5 of Chapter 3 of the 1995 DEIR/EIS is somewhat incorrect; the restrictions are better described under "Permitted pumping rate" in the list on page 2-6 (FEIS Volume 1, page 2-7). The last sentence of the next to last paragraph on page 3-5 of the 1995 DEIR/EIS (see page 3-6 of Chapter 3 of FEIS Volume 1) has been revised as follows:

The current pumping level is limited to a daily average of 6,680 cfs by the requirement for a USACE permit for exceedance of this rate (the restrictions for the period of December 15 to March 15, as interpreted by DWR, allow a combined rate of 11,700 cfs in December and March and a combined rate of 12,700 cfs in January and February).

Full terms of the notice under which DWR increases its pumping during this period and simulation of those terms are described on page A2-8 in Appendix A2, "DeltaSOS: Delta Standards and Operations Simulation Model".

**B7-41.** A continuous SWP pumping rate of 10,300 cfs for a month was simulated for cumulative future conditions with DWR's Interim South Delta Program. See page A2-8 of Appendix A-2 of the 1995 DEIR/EIS for a complete discussion of SWP pumping capacity and limitations.

For purposes of impact assessment, DeltaSOS simulated all potential CVP and SWP pumping before estimating the amount of water available for Delta Wetlands diversion or the pumping capacity available for export of Delta Wetlands diversions. The effect of this DeltaSOS assumption was to reduce the amount of water available for Delta Wetlands diversions and reduce the opportunity for Delta Wetlands discharge for export, providing the most reasonable estimate of likely project operations and eliminating the possibility of simulating project diversions and discharges in the same month.

- **B7-42.** Average exports were 218 TAF/yr in the 21 wet years of the simulation presented in the 1995 DEIR/EIS analysis. If these years are eliminated from the analysis, the average export amount for the remaining 49 years is 175 TAF/yr, which is less than the overall average of 188 TAF, but not 80 TAF less. The 2000 REIR/EIS reevaluated discharge opportunities under the proposed project with incorporation of the FOC restrictions into project operations. Incorporating the FOC restrictions reduces project discharges to export.
- **B7-43.** The commenter notes that the revenues generated by annual project water sales should have been estimated based on average discharges rather than average diversions. This is not only true for water sales under Alternative 1, but also for water sales under Alternatives 2 and 3. As a result, the estimated annual water sales would be lower than those reported in Chapter 3K of the 1995 DEIR/EIS. This correction has been made to the estimates in Chapter 3K based on the results of the simulations in the 1995 DEIR/EIS.

Additionally, limits on Delta Wetlands Project diversions and discharges required by the FOC and other terms of the state and federal biological opinions would further reduce the estimated annual water sales for the proposed project. For example, project discharges for export reported in the 2000 REIR/EIS for Alternatives 1 and 2 were estimated to be a maximum of 138 TAF/yr based on the monthly simulations and 1995 level of demand for water. Based on this estimated project yield and the water price of \$200–250 per acre-foot used in the 1995 DEIR/EIS, annual revenue from water sales would be estimated at a maximum of \$28–35 million for Alternatives 1 and 2. It should be noted that the estimates

- of revenue presented in Chapter 3K are for purposes of comparing the alternatives and are not meant to provide a precise estimate of annual revenues for the project.
- **B7-44.** As noted by the commenter, releases are made from Oroville and Shasta Reservoirs for fish and wildlife enhancement, in addition to supplying diversions and exports and helping to meet Delta outflow requirements. This correction does not change the impact evaluation or the conclusions of the NEPA and CEQA analysis.
- **B7-45.** The information provided by the commenter has been noted. This correction does not alter the impact analysis. The assumptions included in DWRSIM were used in DeltaSOS for consistency with DWR's methods.
- **B7-46.** One application of DeltaSOS is to confirm DWRSIM results of Delta operations. As stated in Appendix A2, DeltaSOS tests each input matrix against calculated Delta channel flows for each month of the simulation period. If a specified standard is not satisfied, some action within the Delta would be required to meet the specified standard. Necessary adjustments, including "imaginary water", are accounted for and reported by DeltaSOS. Table A3-8 in Appendix A3 provides annual summaries of necessary adjustments. The assessment in the 2000 REIR/EIS does not adjust DWRSIM estimates of required Delta outflow or inflows.
- **B7-47.** The North Bay Aqueduct is not included in the definition of Delta exports used to determine the E/I ratio in the 1995 WQCP; therefore, it was not included in the definition of future export pumping capacity on page A3-3. However, North Bay Aqueduct pumping is calculated similar to other in-Delta diversions and does affect the calculation of net Delta outflow, which is regulated under the 1995 WQCP.
- **B7-48.** The commenter is correct in noting that the annual totals in Table A3-4a are incorrect. The correct values are shown in Table A3-1, in the column labeled "Banks & Tracy Pumping". These data were replaced in the 2000 REIR/EIS analysis with mean annual input data from DWRSIM study 771; see Table 3-1 in the 2000 REIR/EIS.
- B7-49. If measurements showed that DOC concentrations in water stored on the Delta Wetlands reservoir islands exceeded a specified mitigation trigger, release of the stored water would have to be conducted slowly; the release rate also would be subject to modification based on continued monitoring of DOC concentrations in the stored water and in the receiving channels. Chapter 4 of the 2000 REIR/EIS (see FEIS Volume 1, Chapter 3C) describes how the proposed mitigation of DOC increases would be implemented to control Delta Wetlands Project effects on export DOC concentrations under extreme (worst-case) DOC loading conditions. It also discusses how the mitigation would be adjusted to meet any mitigation requirement specified in water right permit terms for the project. Detailed monitoring requirements and Delta Wetlands operations changes are also described in the WQMP negotiated by Delta Wetlands and CUWA.

- B7-50. The potential release of algae from the reservoir islands in discharges for export was identified as an impact in the NEPA and CEQA analysis (see Impact C-7, "Changes in Other Water Quality Variables in Delta Channel Receiving Waters", in the 1995 DEIR/EIS [page 3C-34 in Chapter 3C of FEIS Volume 1] Algal monitoring is included in Mitigation Measure C-7 in Chapter 3C, "Water Quality", of the 1995 DEIR/EIS and of FEIS Volume 1: "Restrict Delta Wetlands Discharges to Prevent Adverse Changes in Delta Channel Water Quality". This measure would require Delta Wetlands to monitor water quality variables, including chlorophyll, in water stored on the reservoir islands during intended discharge periods and in Delta channel receiving waters. Levels of the variables in stored water and receiving water would be related using the expected dilution ratio at each location of a discharge pumping station. Delta Wetlands would estimate the dilution ratio based on channel flow rates and intended discharge rates using specified mixing-zone assumptions. Project discharges would be limited as needed to prevent significant adverse effects on levels of these variables in the receiving channels. Delta Wetlands will be required to submit reports of measurements to the SWRCB.
- **B7-51.** The Delta Wetlands Project is analyzed as a stand-alone water storage facility, operated independently of the SWP and CVP. Because Delta Wetlands operations were evaluated as being independent of SWP and CVP operations, no changes to reservoir operations would occur, and using DWRSIM to simulate project operations directly would have produced results similar to those obtained using DeltaSOS. See also Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program".
- **B7-52.** Although daily simulations of flow provided useful information, impact assessment methodologies are based on the initial water budget developed from the results of monthly simulations performed by DWR using DWRSIM. See responses to Comments A2-8 and B7-36.
  - Actual daily operations of the Delta Wetlands Project would be based on daily Delta conditions and ongoing monitoring, as described in the FOC and illustrated in Appendix F of the 2000 REIR/EIS.
- **B7-53.** The impacts of Delta Wetlands operations on Delta outflow were evaluated in the 1995 DEIR/EIS. The analysis of water supply and hydrodynamic effects of the Delta Wetlands Project was based on net channel flow changes under Delta Wetlands Project operations (see Chapter 3B of Volume 1 of this FEIS and Appendix B1 of the 1995 DEIR/EIS). The impact assessment of fishery effects included consideration of the tidal flow transport that would cause some Delta Wetlands discharges to mix downstream toward the bay. See also Master Response 1, "Project Objectives: Analyzing Effects of Water Transfers, Banking, and Augmenting Outflow".
- **B7-54.** The commenter is correct in noting that take limits for endangered fish species at the SWP and CVP pumping facilities could reduce Delta Wetlands Project operations. However, for purposes of impact assessment using the DeltaSOS model, a "worst-case" scenario was

assumed in the 1995 DEIR/EIS in which all water discharged from the project reservoir islands would be exported through the SWP and CVP; such a level of exports would have the greatest detrimental effect on water supply, hydrodynamics, water quality, and fishery resources. The stipulated agreement between Delta Wetlands and DWR that was submitted to the SWRCB during the 1997 water right hearing specifies that Delta Wetlands must stop or reduce reservoir releases if the SWP or CVP would have to modify operations to meet a legal requirement (e.g., ESA take limits) because of the Delta Wetlands Project discharges. These restrictions would apply to real-time project operations. The presence of fish, which triggers these restrictions, is unpredictable, and speculation about the presence of fish would be necessary for the restrictions to be modeled. For these reasons, the DeltaSOS simulations did not include reductions in project operations related to CVP and SWP take limits.

- **B7-55.** The monthly version of the Kimmerer-Monismith equation is used directly in DeltaSOS. The end-of-month X2 value is calculated from the previous X2 location and the monthly outflows as described on page A2-7 in Appendix A2 of the 1995 DEIR/EIS.
- **B7-56.** The commenter is correct in noting that calibration of the hydrodynamic model did not involve flow data and that flow-split verification was not performed for the model. Model calibration involved only tidal stage measurements. This is noted on page B1-4 of Appendix B1, "Hydrodynamic Modeling Methods and Results for the Delta Wetlands Project". Flow split estimations are based on the hydrodynamic model results. Direct hydrodynamic calibration of the Resource Management Associates (RMA) model with channel flows and velocities has not been possible because flows and velocities have been measured routinely in the Delta channels at only a few locations.
- **B7-57.** The restrictions on SWP pumping, as interpreted by DWR, are discussed in the passage that immediately follows the statement referred to by the commenter, under "Permitted pumping rate". As the commenter notes, DWR monthly pumping is often less than capacity. DWRSIM and DeltaSOS values reflect this.

Full terms of the notice under which DWR increases its pumping during this period and simulation of those terms are described on page A2-8 in Appendix A2, "DeltaSOS: Delta Standards and Operations Simulation Model", of the 1995 DEIR/EIS. See response to Comment B7-40.

B7-58. As described in Chapter 3, "Water Supply and Operations", of the 2000 REIR/EIS (Chapter 3A in Volume 1 of this FEIS), the results of DWRSIM study 771 were used as the basis of simulations of Delta Wetlands Project operations performed using DeltaSOS. DWRSIM study 771, which uses 1995 hydrology and demands, is the currently accepted standard that CALFED and other state water planners use to represent baseline conditions. When the 1995 level of development for SWP/CVP project demands and deliveries is used, it is possible to evaluate the greatest level of Delta Wetlands operations likely to occur. Results for Delta Wetlands operations would differ slightly if demands and deliveries under a 2020 level of development were assumed with existing facilities.

- **B7-59.** Appendix A4 describes net daily flows in the Delta; tidal flows and tidal operations, which include operation of the Clifton Court gates, are not described. The Clifton Court gates are operated to balance the daily export pumping rate; they would be operated for a period sufficient to fill Clifton Court to match daily pumping. Daily operations of the Delta Wetlands Project, including movement of discharged water through the Clifton Court Forebay intake gates, would need to be planned through coordination with the CALFED Ops Group (see response to Comment B6-49). Therefore, the way that water released from the Delta Wetlands islands would be coordinated with operation of the intake gates is subject to the review and direction of the CALFED Ops Group. The commenter's recommended addition to Appendix A4 has been noted; however, this change does not affect the conclusions of the environmental analysis presented in the 1995 DEIR/EIS.
- **B7-60.** Because the Delta Wetlands Project is assumed to operate independently of the SWP and CVP, project operations cannot affect instream flows. The effects of project operations on outflow were included in the simulations of project effects. The FOC terms now incorporated into the proposed project include numerous restrictions on project operations that limit potential effects on outflow and X2. The project cannot operate outside the parameters established in the FOC.
- **B7-61.** See response to Comment B7-6.
- **B7-62.** Many factors that may have significant effects on fishery resources, including extreme tides, weather (barometric pressure), and variable temperatures, are not incorporated into the hydrodynamic simulations or included in the fishery impact assessment.

The best available information and tools were used in the impact analysis and development of mitigation. The fishery analysis was based on the monthly average distribution of species of interest. The average tidal exchange mixing was a factor in the fishery impact assessment. The simulated tidal exchange mixing was incorporated into the assessment of fish transport and entrainment. Differences between the spring and neap tidal conditions were not considered. Adaptive operations criteria that use real-time or near-real-time information are included in the FOC to minimize and avoid significant impacts attributable to extreme conditions.

**B7-63.** The mitigation measures proposed to reduce project effects on fishery resources have been replaced with the FOC and RPMs described in the biological opinions. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions". The FOC terms include a monitoring program that is summarized in Master Response 4. As stated in the FOC, Delta Wetlands will be solely responsible for conducting the required monitoring. Delta Wetlands will work with DFG to determine whether information can be processed quickly enough to accommodate adaptive management. The FOC state:

[Delta Wetlands] shall work directly with CDFG to resolve daily technical monitoring issues but may convene the Monitoring Technical Advisory Committee to act in a technical capacity to provide review and address any technical inadequacies or disagreements that may occur.

In addition, the USFWS biological opinion includes the following term:

The Corps shall minimize the impacts on delta smelt associated with normal operation of the reservoir and habitat islands including filling and discharging water as described above or historical operation of the islands for agricultural production by implementing the avoidance, minimization, and compensation measures contained in the Final Operations Criteria and Fish Monitoring Program (January 27, 1997). The Draft proposed Delta Wetlands Fish Monitoring Program shall be finalized at least 90 days prior to the start of any project related construction.

For more detail, see the attachment to the FOC entitled "Delta Wetlands Fish Monitoring Program" in Appendix B of the 2000 REIR/EIS.

- **B7-64.** Available information does not indicate that structures along the Delta channels—including boat docks, pilings, or diversion stations with fish screens—would increase predation to a level that would cause significant impacts. Chapter 5 of the 2000 REIR/EIS (see Chapter 3F in FEIS Volume 1) included updated information about the potential effects of boat docks and pilings on the vulnerability of prey species and success of predator species. Based on the literature search conducted to address this issue, it was concluded that installation of boat docks is not likely to affect fish predator-prey interactions significantly for the following reasons:
  - # Pilings and shade associated with boat docks or fishing piers are used for cover by both predators and prey.
  - # The structurally simple forms of cover provided by the fish screens, intake facilities, boat docks, and fishing piers would attract fewer fish species than more complex forms of cover such as brush piles (e.g., instream woody material) or aquatic plants.

Also, the Delta Wetlands intake, discharge, and recreation facilities would be constructed on relatively steep levee slopes. These locations are not believed to be areas of preferred spawning or rearing habitat for prey species, so the species' vulnerability would not be expected to change substantially. The boat docks would be adjacent to the shoreline and would not extend across a substantial proportion of a channel's width. Based on the preliminary design for the project facilities (see Appendix 2), the boat docks are expected to be floating docks that extend less than 50 feet into channels; the minimum channel width is approximately 400 feet. Juvenile salmon that move along the shore could continue to move under boat docks. Juvenile salmon that move with the main channel flow would not be affected by or come into contact with the boat docks.

A new mitigation measure is proposed to reduce the number of boat slips that Delta Wetlands may construct; implementation of this measure reduces the impacts that could result from recreation use associated with the proposed project. This measure is described under "Additional Mitigation of Potential Impacts: Reduction in Boat Slips at Recreation Facilities" in Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".

The commenter is also concerned about the potential for predation at the intake facilities and fish screens. The following additional factors reduce the potential for increases in predation associated with Delta Wetlands' diversion facilities and fish screens:

- # The fish screens would not be in place year round, but only during the diversion period.
- # The low approach velocity for the fish screens (equal to or less than 0.2 fps) would protect fish within the influence of the diversions. The draw toward the diversions would be small because velocities toward the diversions would decrease with distance; a few yards away from the screens, flow toward them would be difficult to detect. (See response to Comment B6-60 for additional information about the design of the fish screens.)
- # Most of the time, bypass flows would be created by tidal currents near the Delta Wetlands diversion facilities, and slack periods would probably last less than an hour between each tidal cycle.

Given these factors, the fish screens and diversion facilities would not be expected to concentrate or disorient juvenile salmonids and other fish species.

Additional information about predation and the issue of reverse flows was included in the biological assessment "Effects of the Central Valley Project and State Water Project on Delta Smelt and Sacramento Splittail" prepared by DWR and USBR (U.S. Bureau of Reclamation and California Department of Water Resources 1994). In the USBR/DWR assessment, reverse flows were not found to be associated with entrainment of delta smelt and splittail. Entrainment of delta smelt appeared to increase when outflow was less than 10,000 cfs (page 195 in the USBR/DWR assessment); entrainment of splittail was observed to be a function of abundance (page 196 in the DWR assessment).

Also, the USBR/DWR assessment discussed the possibility that increased predation on delta smelt and Sacramento splittail may be caused by increases in water clarity and introduced species (pages 104–106 and 169 in the USBR/DWR assessment). Physical features of the Delta Wetlands Project (fish screens, boat docks, and outlet siphons) would not increase water clarity and would be unlikely to substantially increase predator abundance for the species discussed in the USBR/DWR assessment. Catfish, striped bass, and sunfish were well established in the estuary before delta smelt and splittail declined. Several species (e.g., striped bass) declined concurrently with splittail and delta smelt.

Other species that may prey on delta smelt and splittail (e.g., silversides) are not associated with habitats that would be created by the Delta Wetlands facilities.

- **B7-65.** The FOC terms include a measure to preserve 200 acres of shallow-water rearing and spawning habitat to compensate for project impacts on habitat. The DFG RPMs also include the requirement that Delta Wetlands deposit monies into an aquatic habitat restoration water fund, which will be used by DFG to pay for environmental enhancements that benefit winter-run chinook salmon and delta smelt. See "Alteration of Habitat" in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".
- B7-66. The information on life histories of delta smelt and splittail that was provided in the biological assessment and the 1995 DEIR/EIS was sufficient for analysis of potential project impacts. USFWS issued no-jeopardy opinions for project effects on both species. USFWS's 1997 biological opinion on Delta Wetlands Project effects on delta smelt (Appendix E of the 2000 REIR/EIS) includes information on the life histories of both delta smelt and splittail. Attachment 4 of the DFG biological opinion (Appendix C of the 2000 REIR/EIS) also includes life history summaries for splittail and delta smelt. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for information on project operating restrictions that provide protections for splittail.
- **B7-67.** Variable timing of juvenile migration is described in detail on page A-4 in Appendix A of the biological assessment for Delta Wetlands Project effects on fish species (Appendix F2 of the 1995 DEIR/EIS). The text does not identify the source for PRIV (the estimated proportion of juvenile production in the river at the beginning of a month) and PSMOLT (the monthly proportion of annual production that moves downstream during smoltification). PRIV is initially calculated from the data shown in Figure 4-2 (in Chapter 4 of the biological assessment); PSMOLT is also shown in Figure 4-2.

The analysis of the effects of agricultural and habitat island diversions on winter-run survival is explained on pages A-3 and A-4 in Appendix A of the biological assessment. Effects on winter-run survival are a function of Delta flow conditions; therefore, the effects of agricultural and habitat island diversions on winter-run survival depend on how flow conditions are affected by agricultural and habitat island diversions (as represented by changes in the cross-Delta flow parameter).

- **B7-68.** See response to Comment A7-3.
- **B7-69.** See response to Comment B7-50.
- **B7-70.** See response to Comment B6-60 regarding details of fish screen design that were developed through consultation with DFG, NMFS, and USFWS.

Existing information does not support the contention that fish would be drawn toward and concentrated at the Delta Wetlands diversions. See response to Comment B7-64 regarding the potential for predation at the Delta Wetlands facilities and the issue of reverse flows.

- **B7-71.** The text referred to by the commenter on page 3F-5 of Chapter 3F of the 1995 DEIR/EIS (page 3F-6 of Volume 1 of this FEIS) identifies reverse flow as a potential factor increasing entrainment loss, not as a definite factor. The inconsistency between this comment and Comment B7-70 indicates the unresolved nature of the question of transport and reverse flow. Tidal flows move eggs and larvae upstream and downstream relative to a given location but do not necessarily result in net movement. Net flows, however, may result in net movement of eggs and larvae, especially when tidal flows move the eggs and larvae into relatively narrow channels (e.g., Old and Middle Rivers), where net flows may have an increased effect.
- B7-72. The commenter is correct in clarifying the statement about the distribution of delta smelt. The second sentence of the third full paragraph on page 3F-6 of the 1995 DEIR/EIS (page 3F-7 of FEIS Volume 1) indicates that under natural outflow conditions, delta smelt larvae are carried downstream to near the upstream edge of the entrapment zone (e.g., 2-parts-perthousand [ppt] salinity), where they typically remain and grow to adult size. Although they generally remain near this upstream edge of the entrapment zone, delta smelt maintain a broad distribution and are not concentrated in one narrow salinity band; they may occur in fresh water or in water with salinity that exceeds several parts per thousand.
- **B7-73.** The text under "Factors Affecting Abundance" on page 3F-6 in Chapter 3F of the 1995 DEIR/EIS (page 3F-7 of Volume 1 of this FEIS) states that high outflow provides improved habitat conditions in Suisun Bay. The improvement is a function of salinity (i.e., delta smelt are generally found where salinity is less than 2 ppt). The importance of the Delta as habitat for delta smelt is a function of outflow; in general, Delta habitat is most important during low outflow conditions.
- **B7-74.** Information provided on page 3F-7 of Chapter 3F of the 1995 DEIR/EIS (page 3F-8 of Volume 1 of this FEIS) indicates that splittail are found *primarily* in the Delta except during spawning migration and during the early rearing of juveniles. This is not inconsistent with more recent information on splittail distribution. The information on splittail that was provided in the biological assessment and the 1995 DEIR/EIS included details that supported the proposal to list the species as threatened under the federal ESA (59 FR 862, January 5, 1994); this information was sufficient for analysis of potential project impacts. USFWS's May 1997 biological opinion for project effects on delta smelt incorporated a conference opinion on project effects on splittail; USFWS formally adopted the conference opinion as its no-jeopardy biological opinion in April 2000. See response to Comment B7-66 regarding information on splittail life history; see also Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for information on project operating restrictions that provide protections for splittail.

- **B7-75.** See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for information on the way in which FOC terms will restrict Delta Wetlands Project effects on channel temperatures.
- **B7-76.** See response to Comment B6-60 regarding the details of the fish screen design developed during federal and California ESA consultation. Also, USFWS issued a no-jeopardy opinion for project effects on splittail in April 2000. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for information on project operating restrictions that provide protections for splittail.
- **B7-77.** See response to Comment B7-63.
- **B7-78.** See response to Comment B7-63.
- **B7-79.** This comment refers to the biological assessment (Appendix F2 of the 1995 DEIR/EIS). See responses to Comments B7-72 and B7-73 regarding the distribution and abundance of delta smelt. The commenter refers to a sentence on page 4-10 of the biological assessment; in this sentence, the word "since" should have been "during", and the sentence should have stated that during the 1986–1992 drought, most delta smelt were almost entirely absent from Suisun Bay and Suisun Marsh.
- **B7-80.** The first sentence in the first full paragraph on page 4-14 of Appendix F2 of the 1995 DEIR/EIS should read as follows: "Fall midwater trawl surveys provide the longest conducted, best available index of splittail abundance".
- **B7-81.** The information provided is from USFWS and was published in the Federal Register (59 FR 862, January 6, 1994).
- **B7-82.** The migration rate is the proportion of the population that is estimated to enter the Delta during a given month. High river flows, especially during December and January, may cause a greater proportion of the population to move downstream to the Delta than low river flows. See response to Comment B7-67.
- **B7-83.** Fishery surveys conducted in 1995 indicated that the San Joaquin River system upstream of the Delta was used extensively for spawning. The Delta channels around the Delta Wetlands islands have not been shown to support extensive splittail spawning, although the channels may provide rearing habitat. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for information on project operating restrictions that provide protections for splittail.

STATE OF CALIFORNIA -- BUSINESS, TRANSPORTATION AND HOUSING AGENCY

PETEWILSON, Governor

### DEPARTMENT OF TRANSPORTATION

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December 21, 1995

Mr. Jim Munroe California Water Resources Control Board Division of Water Rights P.O. Box 2000 Sacramento, CA 95812-2000

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#### Dear Mr. Munroe:

Thank you for the opportunity to review the Draft Environmental Impact Report (DEIR)/Draft Environmental Impact Statement (DEIS) for the proposed Delta Wetlands project. Our comments are provided below. Please note that Caltrans has an active water rights protest on this project. The issues contained in that protest remain valid and need to be resolved. We appreciate recent activities on the part of the two lead agencies and the applicant to meet with Caltrans and discuss issues of concern to this Department regarding the Delta Wetlands project in a mutual effort to move towards resolution of these issues.

#### Chapter 3L Affected Environment and Environmental Consequences-Traffic

- Criteria for Determining Impact Significance

The DEIR needs to address potential project effects to planned future highway widening. This item should be added as a criteria for determining project related and cumulative traffic impacts and mitigation (Page 3L-7) and fully assessed for each alternative. A project should be considered to have a significant effect on the highway if it would result in a decreased feasibility for future planned highway improvements.

- Impacts and Mitigations

For each alternative the traffic analysis contained in the DEIR indicates that the project alternative would result in the addition of more traffic than the daily volume of traffic needed to be considered a significant project related impact. These additional peak hour trips added to roadway segments, which will already be at unacceptable LOS under future traffic conditions, results in an impact which is considered significant and unavoidable. The DEIR indicates no mitigation is available to reduce this impact. Explanation for this is given in the Chapter Summary on Page 3L-1, which states that "although implementing the Caltrans route concepts for State Route 4 and State Route 12 would reduce this impact to a less than significant level, no funding sources have been identified by Caltrans to implement this measure".

**B8-1** 

Mr. Jim Munroe December 21, 1995 Page 2

In specific regard to State Route 12 on Bouldin Island, the finding that the traffic impacts are unavoidable and no mitigation is available is not accurate and must be modified and re-analyzed. A project to widen and add passing lanes on State Route 12 across Bouldin Island is included in the San Joaquin Council of Governments' 1994 Regional Transportation Plan (RTP). This is the official plan for regionally significant transportation improvements in San Joaquin County. By State and Federal law, this plan must be "funding constrained". It can only include projects for which funding can be identified as available over the 20-year planning period. Therefore, the State Route 12 project on Bouldin Island is within the transportation funding resources expected to be available in San Joaquin County. Additionally, this improvement on State Route 12 is also included in the current "Measure K" Strategic Plan of the San Joaquin County Local Transportation Authority, which identifies how sales tax revenue dedicated for transportation purposes in the County will be expended.

**B8-2** 

Given the inclusion of this project in these formal transportation planning documents, this project must be identified as an available and feasible measure to mitigate for future traffic conditions that are projected to occur on Route 12. Therefore this chapter of the EIR/s needs to be fully revised using the significant new information provided above.

B8-3

In regard to Chapter 3E-Affected Environment and Environmental Consequences-Highway and Utilities, Page 3E-5, Criteria for Determining Impact Significance, the environmental document needs to address the project effects to on-going roadway maintenance and planned future widening. The project effects to ongoing roadway maintenance and planned highway widening need to be added as criteria for determining impact significance. These criteria need to be fully assessed for each project alternative. A project alternative should be considered to have a significant impact on highways if it would result in a decreased feasibility for on-going or future facility improvements (i.e., widening). Concerning Chapter 3 E-6, subheading Bouldin Island, the information in this section does not adequately address construction of Alternative 1 (and later 2) and future land uses on Bouldin Island. The document needs to be revised to include a comprehensive review of implementation effects on the Habitat Management Plan (HMP) to planned State Route 12 facility improvements (which will also be serving as a traffic mitigation measure).

**B8-4** 

Implementation of Alternative 1 or 2, which creates sensitive wildlife habitat to the edge of the existing right of way of Route 12, would not be compatible with planned and feasible improvements to State Route 12, as previously discussed. The creation of riparian areas, seasonal wetlands and other high value habitat immediately adjacent to the highway would have a significant and detrimental effect on these improvements. Widening the highway (which future traffic projections indicate is needed and which is a planned improvement that is recommended to be identified as a mitigation measure in this DEIR) under Alternative 1 or 2 would necessitate that a portion (see below) of this habitat area would be needed. This would increase the environmental effect of this subsequent highway project, potentially substantially increasing it's mitigation and permitting requirements (and the related costs). This could also effect the design requirements of the highway project and make it more difficult to be constructed. These impacts need to be identified in the DEIR. It should also be recognized that the design criteria of the HMP states that it is the goal of the plan to take advantage of, rather than disrupt, large existing infrastructure. It appears that the Plan, as currently proposed for Alternatives 1 and 2, would disrupt and potentially delay future improvements to State Route 12. The HMP also appears to indicate that high value habitat for special status species and waterfowl will be located directly adjacent to State Route 12. This also suggests that a reconfiguration of the Plan be considered so that low value habitat species would be located directly adjacent to the Route 12 corridor.

**B8-5** 

Mr. Jim Munroe December 21, 1995 Page 3

Finally, the DEIR needs to recognize that there is a clear public need for the planned highway improvement on State Route 12. Traffic volumes in the corridor are projected to nearly double in the next 15 years, leading to highway break-down conditions unless the necessary improvements are made. Highway traffic includes 18% trucks making it a major freight corridor. It is the only major east/west highway connecting the North Bay Area and the San Joaquin Valley between Sacramento and Stockton. It is most logical to handle the projected increase in travel demand by improving the highway in its current configuration.

**B8-6** 

From the perspective of public policy and interagency coordination there are a number of public benefits for recognizing the future highway widening in conjunction with development of the Delta Wetlands project. Conversely, it does not make good public planning sense to establish a habitat program for one project which would be impacted and altered by a needed and planned highway improvement and which could complicate and increase the cost of this subsequent highway improvement.

In order to improve the highway, Caltrans has identified the future need for approximately 100 additional feet of right of way extending south from the existing highway right of way line.

Additional right of way would be needed to add an additional bridge at the Mokelumne River and at Potato Slough; however, this additional right of way need has not been determined at this time.

**B8-7** 

The Department is currently working with the two lead agencies and the project applicant to re-look at the geographic layout of the HMP, and the establishment of newly created habitat areas in the areas immediately adjacent to the south side of State Route 12. Consideration is being given to moving the higher value habitat identified as abutting the highway to other locations and locating agricultural uses in proximity to the highway. Additionally, consideration is being given to redesignating the boundary of the HMP to approximately 100-feet south of the existing highway right of way.

Further, discussions between the two lead agencies, the applicant and Caltrans, concern the location of a 5-foot high and 20-feet wide berm which would be constructed in close proximity to the south right of way of the existing highway (although this berm does not appear in any cross-sections or diagrams contained in the DEIR). Additionally, the specific location of a drainage ditch in proximity to State Route 12, which would be between the berm and the highway, is also part of these discussions. Also, under discussion is the management of the 100-feet area south of the existing highway right of way.

**B8-8** 

Caltrans believes that reaching formal agreement on the above issues as they relate to the 100-foot corridor south of the existing highway is critical to resolving the impacts this project will have on the planned future improvements to State Route 12 on Bouldin Island. This formal agreement needs to be identified as a mitigation measure in the DEIR and identified as a condition of project approval.

**B8-9** 

#### Maintenance Agreement

In addition to the above issues, Caltrans understands that a berm and ditch will be located close to the existing right of way on the north side of the highway. Caltrans and the applicant need to enter into a Maintenance Agreement governing the maintenance and management of the water system, and the berms and ditches on both sides of State Route 12.

**B8-10** 

This Agreement would cover how the ditches and berms will be maintained and how water will be pumped from the ditches. It will also cover any liability issues that relate to State Route 12. We request that this Maintenance Agreement be identified as a mitigation measure and that it be completed before construction begins.

Mr. Jim Munroe December 21, 1995 Page 4

#### Geotechnical Issues

Caltrans understands that under Alternatives 1 and 2 water elevations on Bouldin Island will not change significantly and that water will not be stored at elevations higher than present. Also that water will be retained in the same proximity to State right of way as it is at present for farming. Please verify that this statement is correct or indicate where there are differences with our understanding. Please indicate what "water elevations will not change significantly" means in detail for Alternatives 1 and 2 on Bouldin Island.

B8-11

Alternative 3 proposes to place a spillway on the dam that would direct overflow onto State right of way. Ed Hultgren (Hultgren Geotechnical Engineers) states that this spillway is to provide an overflow for a levee break and the spillway was not placed as an overflow when overfilling of the dam occurred. The concern remains that the location of the spillway may place additional flooding potential on State Route 12. The spillway elevations and location would require additional study if this alternative was selected. If Alternative 3 is ever to be built, a review from the Caltrans Roadway Geotechnical section would be required.

A number of geotechnical concerns were addressed in the Water Protest (submitted in 1988) by Caltrans. The majority of these concerns were related to Alternative 3; these continuing concerns will be addressed in these comments. These geotechnical concerns are: [D] mud heave, [G] soils, [H] construction loading, [I] water levels, [K] levee design and [L] riparian areas. [The capital letters refer to letters that indicate the item in the Water Protest.] The following paragraphs address each item individually:

- [D] Mud Heave-It is indicated at this time that mud heave will not be a problem in this peat material and with the proposed dam configuration. A further analysis of the possibility of mud heave occurring would be needed if Alternative 3 is chosen.
- [G] Soils-The soils present in the Delta raise many geotechnical concerns. It appears that Alternative 3 can be constructed if proper engineering methods are employed to handle these unusual soils. The geotechnical design would need to be reviewed by Caltrans if Alternative 3 is selected.
- [H] Construction Loading Construction loads and the loading of the dam itself will present some geotechnical concerns which must be further addressed with Caltrans review if Alternative 3 is selected.
- [I] Water Levels If Alternative 3 was selected, considerable geotechnical information would be required by Caltrans to address the possibility of increased water within the State right of way. This information is not available in the DEIR.
- [K] Levee Design Alternative 3 presents the only concern for the design of the levees. The levee design must be addressed during the design phase with Caltrans review if Alternative 3 is selected.

If Alternative 3 is selected, a number of geotechnical concerns will be encountered and need to be addressed by the Caltrans Engineering Service Center.

# Traffic Operations and Encroachment Permits

In regard to access to planned recreational facilities on Bouldin Island, the DEIR needs to recognize that there are currently no public road intersections with State Route 12 which provide access for these new facilities. Each new public access road connector to State Route 12 will require an encroachment permit from Caltrans and will require that the intersection meet public road connection standards and have left-turn channelization.

B8-13

**B8-12** 

D 10 CALTRANS

Mr. Jim Munroe December 21, 1995 Page 5

Caltrans recommends the applicant meet with District Traffic and Encroachment Permit staff to discuss in detail the proposed location of new public road intersections and what is required for an encroachment permit.

**B8-13** cont'd

## Chapter 3I, Affected Environment and Environmental Consequences-Land Use and Agriculture

This chapter needs to address potential land use issues surrounding the existing State Route 12 facility and the planned expansion of that facility. At a minimum, the section should address impacts of the project to the existing facility, projected use and the need for planned facility improvements.

**B8-14** 

## Appendix G3, Habitat Management Plan for the Delta Wetlands Habitat Islands, Habitat Types, Figure 4

Figure 4 shows free-roam hunting throughout the area surrounding State Route 12. The figure and associated text should be revised to accurately depict designated no-hunting zone set-backs along State Route 12. Hunting in the area along State Route 12 could create potential traffic hazards.

**B8-15** 

# Appendix G5, Summary of Jurisdictional Wetland Impacts and Mitigation

The DEIR/DEIS does not contain a map showing existing wetlands mapped by the Natural Resources Conservation Service (NRCS), Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (FWS) and the U.S. Army Corps. of Engineers (ACOE). Tables G5-6 show the amount of Federal jurisdictional wetlands present on the project and habitat islands; however, the table does not convey the physical location of each wetland resource. The FEIR/FEIS should contain a map showing wetland ACOE verified boundaries.

**B8-16** 

In closing, we request that Caltrans be included in the process to develop, review and approve subsequent discretionary actions by the lead agencies for the detailed site and project element specific stages of this project, as a coordinating agency with responsibility to own and operate State highways within the project boundaries. We would like to receive the FEIR, Mitigation Monitoring Plan, staff reports and conditions of project approval when available.

B8-17

Again, thank you for the opportunity to comment. If you have any questions, please contact me at the above referenced telephone number.

Sincerely,

ine J. Costa DANA COWELL Chief, Transportation

Planning Branch B

cc:

Andrew Chesley/SJCOG Peggy Kiernan/SJ County Planning

609540

#### **California Department of Transportation**

- **B8-1.** Implementation of the Delta Wetlands Project would not reduce the feasibility of planned future highway improvements. The Delta Wetlands Project would change the land uses adjacent to the highway right-of-way (ROW) from agricultural to open space/habitat areas; however, it would not be inconsistent with future planned widening and would not involve construction of permanent structures that would make additional roadway widening infeasible.
- B8-2. The direct and cumulative impacts on Delta roadways during operation of future projects, including the Delta Wetlands Project, are described in Chapter 3L. The 1995 DEIR/EIS has been amended to reflect that there is an existing source of funding for widening of State Route (SR) 12 and that Caltrans has initiated preliminary design and environmental compliance work for the widening of SR 12 on Bouldin Island (O'Conner pers. comm.). Additionally, Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities", describes a mitigation measure that would reduce traffic volumes under the proposed project. Therefore, cumulative impacts associated with level of service (LOS) on SR 12 may be mitigated to a less-than-significant level. The last two paragraphs on page 3L-18 and the first paragraph on page 3L-19 of the 1995 DEIR/EIS (page 3L-21 of FEIS Volume 1) have been revised as follows:

Implementing Mitigation Measures L-4 and RJ-1 could would reduce Impact L-21 to a less-than-significant level. However, as described below, there is no funding for implementation of this mitigation measure; therefore, this impact is considered significant and unavoidable.

Mitigation Measure L-4: Implement Caltrans' Route Concepts for SR 4 and SR 12. Although it is not currently programmed (i.e., funded), Caltrans' route concepts for SR 12 across Bouldin Island and SR 4 in Contra Costa County are for four-lane highways in 2010 (Cowell and Johnson pers. comms.). This widening would include the sections of SR 4 south of Cypress Road and south of Delta Road and SR 12 west of Terminous. Caltrans has initiated preliminary design and environmental compliance work for the widening of SR 12 on Bouldin Island (O'Conner pers. comm.). The portion of SR 4 between the San Joaquin County line and I-5 would remain a two-lane highway because of the narrow bridges along that portion of the route. Table 3L-8 describes improvements in V/C ratio and LOS that would result from implementation of Caltrans' route concepts.

Although implementation of this mitigation would reduce this impact to a less-than-significant level, no funding sources have been identified by Caltrans to implement the concept plans for SR 4 and SR 12. This impact is therefore considered significant and unavoidable.

The following citation has been added to Chapter 3L:

- O'Conner, Lynn. Transportation planner. California Department of Transportation, District 10. November 3, 2000—phone conversation regarding State Route 12 widening project. October 25, 2000—preliminary design maps for the State Route 12 widening project.
- **B8-3.** Impacts of the Delta Wetlands Project alternatives on SR 12 are described on pages 3E-6, 3E-13, and 3E-14 of the 1995 DEIR/EIS (pages 3E-7, 3E-14, and 3E-15; respectively of FEIS Volume 1) under "Bouldin Island". Implementation of the Delta Wetlands Project would not significantly affect ongoing roadway maintenance and planned future widening. See response to Comment B8-1 above.
- **B8-4.** Impacts of the project on SR 12 are described on page 3E-6 of the 1995 DEIR/EIS (page 3E-7 of FEIS Volume 1) under "Bouldin Island". The Delta Wetlands Project would change the land uses adjacent to the highway ROW from agricultural to open space/habitat areas; however, it would not be inconsistent with future planned widening and would not involve construction of permanent structures that would make additional roadway widening infeasible. If SR 12 improvements are proposed, the lead agencies for the improvements would assess their impacts on the habitat island in CEQA documents required for the highway widening project.
- **B8-5.** See responses to Comments B8-1 and B8-4 above.
- **B8-6.** See response to Comment B8-2.
- **B8-7.** Caltrans recently transmitted preliminary design information for the SR 12 widening project on Bouldin Island to Jones & Stokes (O'Conner pers. comm.). This information indicates that approximately 100 feet of land south of the existing highway ROW would have to be acquired to widen the highway. In December 1995, the HMP team met with Caltrans representatives to consider changes to the planned habitat configurations on Bouldin Island in response to this comment letter. No formal agreement was reached at that time. If the habitat configurations shown in the HMP are revised to accommodate highway widening on Bouldin Island, Delta Wetlands would submit those changes to the Habitat Management Advisory Committee (HMAC) for review and approval.
- **B8-8.** Appendix G3 of the 1995 DEIR/EIS describes the HMP for Bouldin Island. The HMP team designed island habitats, habitat juxtaposition, and habitat management criteria to meet the management goals of the HMP. The HMP included in the 1995 DEIR/EIS is at an appropriate level of detail for assessment of the environmental impacts of the Delta Wetlands Project under NEPA, CEQA, and the California and federal ESAs. The construction implementation plan for the HMP would include detailed construction specifications and plan drawings; it would be developed by Delta Wetlands and reviewed by the SWRCB, USACE, and DFG (see page 13 of the HMP). Discussions with other interested parties, including Caltrans, regarding the design specifications, detailed plans,

and maintenance practices would take place during detailed planning; they are not required as part of the NEPA and CEQA process.

- **B8-9.** See responses to Comments B8-1 and B8-7.
- **B8-10.** As described in response to Comment B8-8, the HMP included in the 1995 DEIR/EIS is at an appropriate level of detail for assessment of the environmental impacts of the Delta Wetlands Project under NEPA, CEQA, and the California and federal ESAs. The construction implementation plan for the HMP would include detailed construction specifications and plan drawings; it would be developed by Delta Wetlands and reviewed by the SWRCB, USACE, and DFG (see page 13 of the HMP). The agreement referenced in this comment, which would govern maintenance of the water system, ditches, and berms, would be discussed during detailed planning; it is not required as part of the NEPA and CEQA process.
- **B8-11.** The amount of water on Bouldin Island under Alternatives 1 and 2 would be within the existing parameters of the amount of water used on the island for agricultural production. Generally, the duration of flooding would increase and the depth of the water would be more uniform across the island under habitat management than under agricultural use. The commenter is correct in stating that water would not be stored at elevations higher than present elevations and would not be retained any closer to the highway than under existing conditions.

Detailed descriptions of water elevations and water management for each habitat type to be created on the habitat islands are presented in Table 2 of the HMP (Appendix G3). Water depths on flooded seasonal wetland and agricultural habitats (76% of Bouldin Island area) would range from 0 to 12 inches, which is within the range of water depths applied to croplands for weed control under existing conditions. The period of inundation of flooded habitats that would be created with project implementation, however, would exceed existing flooding practice by several months.

Emergent marsh, permanent lake, borrow ponds, and canals (7% of the Bouldin Island area) would maintain water throughout the year at depths greater than 12 inches. Permanent lakes and borrow ponds would be located several thousand feet south of SR 12 (see HMP Figure 2). The existing canal network would be maintained with implementation of the HMP. Water depths in emergent marshes would not exceed 36 inches.

**B8-12.** The biological opinions and protest dismissal agreements, which were developed subsequent to the publication of the 1995 DEIR/EIS, apply to the proposed project (Alternatives 1 and 2). It is therefore unlikely that Alternative 3 would be approved and permitted. If Alternative 3 were approved, as described in Mitigation Measure E-8 on page 3E-14 of the 1995 DEIR/EIS (page 3E-15 of FEIS Volume 1), all design and construction plans for Wilkerson Dam under Alternative 3 would be coordinated with the California Department of Transportation (Caltrans) and DSOD. The final levee design

would include details about the spillway and drainage ditch along SR 12 and would be reviewed by Caltrans before project construction. The potential effects on SR 12 of implementing Alternative 3 are described broadly under Impact E-14, "Increase in the Risk of Structural Failure of SR 12". Caltrans' concerns regarding mud heave, unusual soil conditions, construction loading, seepage, and groundwater and surface water levels would be addressed during the design phase coordinated with Caltrans engineers.

**B8-13.** Chapter 3L of the 1995 DEIR/EIS and of Volume 1 of this FEIS includes a description of the roadway network on Bouldin Island. SR 12 is the only public road on the island, but several narrow private roads provide access to agricultural operations on the island.

The existing private roads on Bouldin Island may provide adequate access to the proposed project facilities, including private recreation facilities. However, it is recognized that if a new public access road connector were proposed, an encroachment permit for construction of public access from SR 12 would be required.

- **B8-14.** Chapter 3I, "Land Use and Agriculture", identifies the change in land use from agricultural use to open space on Bouldin Island under Alternatives 1 and 2. As described in response to Comment B8-1, the Delta Wetlands Project would change the land uses adjacent to the highway ROW from agricultural to open space/habitat areas, but would not be inconsistent with future planned widening or involve construction of permanent structures that would make additional roadway widening infeasible. Therefore, implementation of the Delta Wetlands Project would not affect ongoing roadway maintenance and planned future widening.
- **B8-15.** Figure 4 in the HMP (Appendix G3) shows the location of spaced-blind, free-roam, and closed hunting zones. The free-roam hunting zone is shown as extending to the SR 12 ROW. Hunters may roam throughout the area for purposes of hunting but are required to comply with all federal, state, and local laws and regulations that govern hunting activities, including compliance with the county ordinances that restrict discharge of firearms from public roadways.
- B8-16. The locations of existing wetlands and other habitats are presented in Figures 3G-5 through 3G-9 in the 1995 DEIR/EIS and of Volume 1 of this FEIS. After these habitat maps were prepared, USACE and the Natural Resources Conservation Service (NRCS) revised the jurisdictional delineation for the Delta Wetlands Project islands. However, USACE deemed the habitat maps included in Chapter 3G sufficient to represent the jurisdictional waters of the United States. Maps showing the type, extent, and locations of Section 404 jurisdictional wetlands are on file and available for review from USACE's Sacramento District and the NRCS's state office in Sacramento. Delta Wetlands is currently working with USACE and Jones & Stokes to update the delineation to reflect current conditions on the project islands. See Chapter 3G, "Affected Environment and Environmental Consequences Vegetation and Wetlands", of Volume 1 of this FEIS for more information.



To : <jmonroe@usace.mil>

Cc

Bcc

From : ngayou@water.ca.gov (Nadell Gayou)

Subject : Public Notice 190109804, Delta Wetlands

Date : Thursday, December 21, 1995 at 3:07:44 pm PST

Attach : Certify : N Encrypt : N

\_\_\_\_\_\_

Jim Monroe:

I am making a guess on your E-mail address, please let me know if you

receive this.

Nadell Gayou

December 21, 1995

Colonel John N. Reese U. S. Army Corps of Engineers Regulatory Section 1325 J Street Sacramento, CA 95814-2922

Public Notice 190109804 (State Water Resources Control Board) Delta Wetlands, San Joaquin and Contra Costa Counties

Dear Colonel Reese:

The State has reviewed the subject public notice, coordinating its review with the agencies listed below.

The State Lands Commission states that a permit will be required for "structures located on the waterward side of the levees within a natural channel". For further information contact Diane Jones at (916) 574-1843.

Thank you for providing an opportunity to review this project.

Sincerely,

James T. Burroughs Deputy Secretary and General

Received by email on 12/21/25 Ma.M.

Counsel

cc: Department of Boating and Waterways

Department of Fish and Game

Department of Parks and Recreation

Reclamation Board

Central Valley Regional Water Quality Control Board

State Lands Commission

B9-1

#### **California Resources Agency**

B9-1. The lead agencies have received individual comment letters from the California Department of Boating and Waterways (comment letter B2), DFG (comment letter B6), and the SLC (comment letter B5). See responses to the comments from those resource agencies. Additionally, the permits required by the SLC are identified in Table 4-1, "Permits and Approvals That May be Required for the Delta Wetlands Project Alternatives", of the 1995 DEIR/EIS and of FEIS Volume 1.

# **Section C. Local Agencies**

C1-1



#### MWD

#### METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Office of the General Manager

November 3, 1995

Mr. Jim Sutton
State Water Resources Control Board
Division of Water Rights
P.O. Box 2000
Sacramento, California 95812-2000

Dear Mr. Sutton:

Draft Environmental Impact Report/Environmental Impact Statement For the Delta Wetlands Project

We have received the Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Delta Wetlands Project in the Bay-Delta estuary. The proposed project involves the diversion and storage of water onto two Delta islands, and the seasonal diversion and use of water for wetlands and wildlife habitat management on two other Delta islands. The public review period for the proposed project closes on November 21, 1995.

The Metropolitan Water District of Southern California (Metropolitan) has an entitlement to 2.0115 million acre-feet of water from the State Water Project, which diverts water from the Delta. Since the proposed project would also divert water from the Delta, Metropolitan is interested in thoroughly reviewing the pertinent issues in the Draft EIR/EIS. Metropolitan is supportive of planning efforts such as for the proposed project that are designed to meet California's growing water needs in an environmentally sound manner. So that we may provide you with constructive comments, Metropolitan requests an extension of 45 days from the November 21 comment deadline due to the significance of the proposed project and the amount of information contained in the Draft EIR/EIS.

We appreciate the opportunity to provide input to your planning process. Please call me at (213) 217-6242 at your earliest convenience to discuss the extension.

Very truly yours,

Laura J. Simonek

Senior Environmental Specialist

MME:bvf

## **Metropolitan Water District of Southern California**

C1-1.	The SWRCB and USACE extended the comment period by 30 days (to December 1995) in response to this and other requests.		



# SAN JOAQUIN COUNTY COMMUNITY DEVELOPMENT DEPARTMENT

1810 E. HAZELTON AVE., STOCKTON, CA 95205-6232 PHONE: 209/468-3121 Fax: 209/468-3163

November 14, 1995

State Water Resources Control Board Division of Water Rights Attn: Jim Sutton P.O.Box 2000 Sacramento, CA 95812-2000

U.S. Army Corps of Engineers Regulatory Branch Attn: Jim Monroe 1325 J Street, Room 1444 Sacramento, CA 95814-2922

Re: Draft EIR/EIS for the Delta Wetlands Project

The Delta Wetlands Project directly involves two islands in San Joaquin County. Bacon Island would serve as a "reservoir island," and Bouldin Island would be a "habitat island." Private recreation facilities are proposed for both of the islands.

Both Bacon and Bouldin Islands are zoned for General Agriculture. The zoning regulations of San Joaquin County do not address the creation of reservoirs or habitat; however, private recreation facilities, such as marinas, require a Use Permit.

The project information provided in the environmental document does not include enough specifics for the County to determine if additional environmental information is needed to adequately assess the impacts of the recreation facilities. Therefore, any applications filed with the County for recreation facilities will require separate environmental determinations, based on the precise locations, access, and plans for the facilities. The proposed airstrip on Bouldin Island will also require a Use Permit and further environmental assessment.

The DEIR/EIS states that only residents, employees, and relatives fish from the levees along Bacon Island. This is probably incorrect. The east side of the island is one of the few areas in the County where a public road provides access to a Delta waterway. In past surveys we have found that the area is used for bank fishing by the general public. The DEIR should consider the provision of some bank fishing areas for the public. Bank fishing

C2-1

C2-2

has been one of the most popular recreation activities in the County.

C2-2

With respect to traffic generation, the County General Plan calls for no more than an LOS of C on all County roadways in the Delta, with an LOS of D on State highways. Page 3L-7 is incorrect in inferring that all County roadways have a planned LOS of D. It is true that roads in the Congestion Management Program (CMP) may be D, but in the Delta the only roads in the CMP are State highways.

C2-3

The DEIR does not adequately address protective services, with respect to the increased traffic that would be generated by the project and the need of police and fire units to respond to accidents.

C2-4

The DEIR states that the No-Project Alternative would result in intensified agricultural operations, with an increase in the rate of subsidence. It would seem that if intensification of agriculture were a possibility, it would already have occurred.

C**2-5** 

Thank you for the opportunity to comment on the DEIR/EIS.

Sincerely,

Peggy Keranen Deputy Director

c. Manuel Lopez, Public Works John Pulver, Public Works Richard Laiblin, CAO 6.6.03.12

#### San Joaquin County Community Development Department

C2-1. The design details, square footage, and berth lengths given in the 1995 DEIR/EIS and shown in Figures 2-7 and 2-8 of Appendix 2 are preliminary and are used for analysis of the facilities in the document. The analysis assumes a maximum facility size; actual facility design will not exceed the assumptions in the NEPA and CEQA analysis. If, when specific design details are submitted, a regulating agency determines that the NEPA and CEQA documentation already completed for the project does not cover site-specific environmental impacts in enough detail, the agency may require additional environmental documentation before approving permits or entitlements.

The airstrip on Bouldin Island is an existing facility; therefore, no new county permits should be required.

The description of minor use permits under San Joaquin County in Table 4-1 of Chapter 4 of the 1995 DEIR/EIS has been deleted and replaced with the following:

Agency and Requirements	Agency Authority	Project Activities Subject to Requirements
<u>Use Permit</u>	The county issues permits for construction of recreation facilities and for the opening of a new airport or the modification of an existing airport.	Construction of recreation facilities and the operational activities of the airport on Bouldin Island that include agricultural, recreational, and private commercial activities

C2-2. As described on page 3E-2 of the 1995 DEIR/EIS (page 3E-2 of Chapter 3E of FEIS Volume 1), Bacon Island Road is a county road that runs along the eastern perimeter levee on Bacon Island (Figure 3E-1). San Joaquin County has a 40-foot-wide right-of-way along the road. Although members of the public fish from the levee adjacent to the road, there are no designated public access areas to Delta waterways along the road or to the rest of the island. Bacon Island Road would remain a county road under Alternatives 1, 2, and 3 (Forkel pers. comm.). Therefore, the conditions under which bank fishing now occurs on Bacon Island would not change.

The 1995 DEIR/EIS incorrectly states on page 3J-3 that fishing along the Bacon Island Road perimeter levee is limited to relatives and employees of property owners. The text has been changed to indicate that the public also participates in fishing along the Bacon Island Road levee although there are no designated public access areas off the county roadway. A longtime farm operator on Bacon Island was consulted to verify this information. The text in the "Fishing and Boating" section under "Bacon Island" has been revised as follows (see page 3J-4 of the FEIS Volume 1):

Approximately 90% of the fishing on Bacon Island takes place adjacent to the county road, which is the only means of public access. Approximately 65% of the anglers fish from levees and 35% use boats. Fishing from the levees is limited to relatives and employees of property owners. Anglers originate primarily from San Joaquin County and the East Bay. Although there are no designated public access areas along the roadway for fishing, members of the public fish Middle River from the island perimeter levee adjacent to Bacon Island Road. No other areas of Bacon Island are accessible to the public. Therefore, fishing from other parts of the island (i.e., away from the county roadway) is limited to relatives and employees of property owners, and trespassers in those areas are asked to leave. (Shimasaki pers. comm.)

On average over the year, Between the middle of November and the latter part of January, approximately 20 anglers per day fish on weekends and about between two and four per day fish on weekdays from the levee adjacent to Bacon Island Road. These numbers are generally lower during the rest of the year. Total fishing activity is estimated at 3,120 recreation use-days per year on Bacon Island (Table 3J-2). Boats do not originate from or dock on the island. Anglers using Bacon Island originate primarily from San Joaquin County and the East Bay. Although there are no marinas or boat docks on Bacon Island, about 35% of the anglers use boats to gain access to Delta waterways adjacent to Bacon Island. The remaining anglers (approximately 65%) fish from the levee adjacent to the county road. (Shimasaki pers. comm.)

The following citation has been added to Chapter 3J:

Shimasaki, Kyser. Consultant to Kyser Farms, Bacon Island, CA. February 15 and 16, 1996—telephone conversations with Jeanine Hinde of Jones & Stokes.

See also response to Comment B6-21 regarding the provision of public recreation on the Delta Wetlands Project islands.

C2-3. Chapter 3L of the 1995 DEIR/EIS has been changed to correctly reflect the San Joaquin County General Plan LOS criterion as described in the comment. The discussion of San Joaquin County's LOS criterion for determining impact significance under "Traffic Congestion" has been revised as follows (see FEIS page 3L-8):

According to the San Joaquin County Congestion Management General Plan, an LOS of E or F is an unacceptable LOS on all roadways state highways in the Delta portion of San Joaquin County (Chalk pers. comm.). Furthermore, an LOS of D, E, or F is unacceptable on all other San Joaquin County roadways in the Delta (San Joaquin County Community Development Department 1992).

The following citation has been added to Chapter 3L:

San Joaquin County. Community Development Department. 1992.

San Joaquin County general plan 2010. July 29, 1992. Stockton, CA.

- **C2-4.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".
- C2-5. The No-Project Alternative is based on the assumption that intensified agricultural conditions represent the most realistic scenario for the Delta Wetlands Project islands if permit applications are denied. The lead agencies developed the description of the No-Project Alternative based on the stipulation that no discretionary actions, as defined by NEPA and CEQA, would be needed. Accordingly, Delta Wetlands was involved in determining those practicable future actions that likely would be implemented on the Delta Wetlands Project islands without federal or state permits. Implementation of more intensive agricultural uses, such as orchards, on the Delta Wetlands islands requires a long-term commitment of capital and real estate. Delta Wetlands would pursue such opportunities only if the pending applications for the Delta Wetlands Project were not approved.



# SHASTA COUNTY

## **BOARD OF SUPERVISORS**

1815 Yuba Street, Suite 1 Redding, CA 96001 (916)225-5557 (800)479-8009 (916)225-5189-FAX

MOLLY WILSON, DISTRICT 4

November 27, 1995

U.S. Army Corps of Engineers Regulatory Branch Attention: Jim Monroe 1325 J Street, 14th Floor Sacramento, CA 95814-2922

Dear Mr. Monroe:

I have reviewed the Executive Summary for the Draft Environmental Impact Report and Environmental Impact for the Delta Wetlands Project as prepared by Jones & Stokes Associates, Inc. of Sacramento, California.

I have, for a number of years, been involved in water related issues, and have served as the County's representative to various water boards, commissions, and organizations. I fully support the purpose of the proposed Delta Wetlands project. The diversion and storage of surplus inflows, transferred water, or banked water for later sale or release has the potential for positive impacts on northstate water resources. As an "area of origin" we are very concerned that all efforts are made by downstream users to reduce the demands on northstate supplies.

C3-1

Likewise, the provisions for managed wetlands and wildlife habitat areas and recreational uses are seen as a very positive aspect of the project. It is only through effective management of our precious resources and habitat that we will be able to guarantee that they will be available for use and enjoyment by future generations in all parts of the State of California.

Thank you for the opportunity to comment on the Draft E.I.R./E.I.S. for the Delta Wetlands Project.

Sincerely,

MOLLY WILSON

District 4 Supervisor

## **Shasta County Board of Supervisors**

**C3-1.** The lead agencies acknowledge this comment supporting the project. Because this letter does not specifically comment on the environmental analysis in the 1995 DEIR/EIS, no response is required.

#### SAN JOAOUIN TRIBUTARIES ASSOCIATION

Merced Irrigation District Modesto Irrigation District Oakdale Irrigation District South San Joaquin Irrigation District Turlock Irrigation District

P.O. Box 4060 Modesto, CA 95352

December 6, 1995

State Water Resources Control Board Division of Water Rights Attention: Jim Sutton P.O. Box 2000 Sacramento, CA 95812-2000

U.S. Army Corps of Engineers Regulatory Branch Attention: Jim Monroe 1325 J Street, Room 1444 Sacramento, CA 95814-2922

#### Gentlemen:

This letter is to express the concern of the San Joaquin Tributaries Association (SJTA) members regarding the proposed Delta Wetlands Project and how that project may impact the survival of San Joaquin salmon. We have reviewed the pertinent parts of the Draft Environmental Impact Report/Environmental Impact Statement (Draft EIR/EIS) for the Delta Wetlands Project and do not believe the document adequately addresses our concern.

C4-1

SJTA members have spent millions of dollars over the past ten years working towards improving the fall run Chinook salmon fishery on the Tuolumne River specifically and in the San Joaquin Basin in general. In addition, the Districts are supporting efforts by both the U.S. Fish and Wildlife Service and the California Department of Fish and Game to double San Joaquin Basin Chinook salmon production. The SJTA members are also actively working with other interested agencies in promoting the installation of a permenant operable Old River Barrier to minimize the impact of the existing Central Valley Project and State Water Project export pumps on San Joaquin Basin salmon. Therefore, we have a real interest in seeing that our efforts are not ruined by the construction of additional Delta pumping plants that will be allowed to either intercept, damage or kill outmigrating San Joaquin Basin salmon smolts on their way to the ocean.

State Water Resources Control Board U.S. Army Corps of Engineers December 6, 1995
Page 2

The Draft EIR/EIS clearly concludes that the project diversions could result in significant salinity increases and significant elevations of dissolved organic carbon concentrations; and that project discharges could result in significant changes in other water quality variables in Delta channel receiving waters. The Draft EIR/EIS then states that through adjustments to diversions and discharges impacts can be reduced to less-than-significant levels. However, there are no indications or assurances as to how these adjustments in project operations will be decided or made, and thus no assurance that such mitigation will occur. At the very least, the EIR/EIS should set forth those measures that must be implemented in order to reduce the identified impacts to levels of insignificance.

Specifically, in regard to the fishery issues, the Draft EIR/EIS concludes that the there are significant potential impacts to fishery resources from the San Joaquin Basin in that discharge of water could increase channel water temperature and reduce juvenile chinook salmon survival; and that project operations could affect flows during the peak out-migration period of Mokelumne and San Joaquin River chinook salmon, indirectly increasing chinook salmon mortality. The Draft EIR/EIS then states that proposed integration of monitoring of fish populations and flow conditions with operations criteria for diversion and discharge would reduce Delta Wetlands project effects related to entrainment and transport to less-thansignificant levels; and that the use of efficient fish screens, in combination with the proposed operations criteria, would reduce entrainment loss effects to less-than-significant levels. Again, there is no discussion as to how these adjustments in project operations will be decided or made nor are there an assurances that all diversions to the Delta Wetlands Islands will have adequate fish screens installed. Again, the EIR/EIS should set forth those measures that must be implemented to reduce the identified impacts to levels of insignificance

In addition, the SJTA requests that the State Water Resources Control Board and/or the U.S. Corps of Engineers include in any license or permit issued to the Delta Wetlands Project conditions that prohibit either: 1) Pumping of water from the Delta, which will divert salmon smolts onto the Delta islands or 2) Discharge of water to the Delta, which will increase the temperature of the Delta water above the tolerances of the salmon smolts, at any time outmigrating San Joaquin Basin Chinook salmon smolts are moving through the Delta (generally during April and May of each year).

C4-2

C4-3

State Water Resources Control Board U.S. Army Corps of Engineers December 6, 1995
Page 3

If you have any questions about our concerns please do not hesitate to contact either William Johnston at MID (209-526-7384) or Robert Nees at TID (209-883-8214).

Sincerely,

Ross Rogers, General Manager Merced Irrigation District

Barrett Kehl, General Manager Oakdale Irrigation District

Paul D. Elias, General Manager Turlock Irrigation District Allen Short, General Manager Modesto Irrigation District

Rick Martin, General Manager South San Joaquin Irrigation District

xc: Jones and Stokes Associates, Inc.

Attention: Fern Weston

2600 V Street

Sacramento, CA 95818-1914

#### San Joaquin Tributaries Association

- C4-1. The potential effects of Delta Wetlands Project operations on juvenile fall-run chinook salmon migrating from the San Joaquin River were identified as a significant impact (Impact F-4) in Chapter 3F, "Fishery Resources", of the 1995 DEIR/EIS. 1995 DEIR/EIS recommended mitigation to reduce the impact to a less-than-significant level. Since this comment letter was submitted, the lead agencies have concluded formal consultation with DFG, NMFS, and USFWS, and these agencies have all issued no-jeopardy biological opinions on potential project effects on listed fish species. As part of the consultation process, USACE, the SWRCB, NMFS, USFWS, DFG, and Delta Wetlands agreed on the project operating parameters referred to as the FOC, which have been incorporated into the proposed project. The FOC terms and RPMs described in the biological opinions provide for greater protection for both listed and nonlisted fish species and their habitats; they replace the mitigation proposed in the 1995 DEIR/EIS. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for details about the formal consultation and discussion of the terms of the biological opinions.
- C4-2. The SWRCB and USACE would incorporate all feasible measures and adjustments in Delta Wetlands Project operations that avoid and minimize adverse effects on water quality (e.g., salinity and DOC) into terms and conditions of the project permits. The recommended mitigation measures, described in the 1995 DEIR/EIS, have been further developed through the state and federal ESA consultation process, resulting in the FOC and biological opinion RPMs.

Chapter 4 of the 2000 REIR/EIS (see Chapter 3C of FEIS Volume 1) describes how the proposed mitigation of DOC increases would be implemented to control the effects of the Delta Wetlands Project on export DOC concentrations under extreme (worst-case) DOC loading conditions. It also discusses how the mitigation would be adjusted to meet any mitigation requirement specified in the terms of the project's water right permits. The WQMP negotiated by Delta Wetlands and CUWA provides additional details on monitoring, modeling, and operational controls that would serve to avoid and minimize adverse effects on water quality.

**C4-3.** See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for details about the FOC terms and RPMs that pertain to effects related to temperature and diversions, to the required monitoring program, and to fish screens. See also response to Comment B6-60 regarding requirements for fish screens.

Letter C5

# EGIONAL PARKS

EAST BAY REGIONAL PARK DISTRICT

December 12, 1995

Mr. James Sutton State Division of Water Rights SWRCB Third Floor 901 "P" Street Sacramento, CA 95812

Susan Smartt Douglas Siden Jean Siri Secretary

. Ted Badke

Carol Severin Jocelyn Combs Pat O'Brien Seneral Manage

C5-1

Subject:

Delta Wetlands Project

Dear Mr. Sutton:

The East Bay Regional Park District (EBRPD) has reviewed the subject project with respect to its impact upon regional recreation opportunities. The EBRPD Master Plan calls for increased public recreation access to the Delta within the District's jurisdiction (Contra Costa and Alameda Counties). The EBRPD notes that the project provides only for private recreation access facilities and strongly advocates changes to the project that would provide public access to the Delta for such activities as hiking and bicycle trails, fishing, boating, birdwatching, education and interpretive programs, etc. As a public agency, the District believes that public access on a non-fee or limited fee-for-service basis should be provided as well as commercial recreation by private providers. These kinds of recreation opportunities are rare in the area, should be increased, and the District would be willing to cooperate in providing them.

Thank you for the opportunity to comment.

Very truly yours,

Martin Vitz

Advanced Planning Manager

MV/tl

cc:

Robert E. Doyle, EBRPD

Margit Aramburu, Delta Protection Commission

Robert Hight, State Lands Commission

Supervisor Tom Torlakson, Contra Costa County

C:\WPFILES\MARTIN\SUTTON.LTR



## **East Bay Regional Park District**

C5-1.	Implementing the Delta Wetlands Project would not reduce public access or opportunities for recreation on the Delta Wetlands Project islands. See response to Comment B6-21					
	regarding the provision of public recreation on the Delta Wetlands Project islands					



WATER PLANNING DEPARTMENT

JOHN B. LAMPE

DIRECTOR

December 14, 1995

State Water Resources Control Board Division of Water Rights Attention: Jim Sutton P.O. Box 2000 Sacramento, CA 95812-2000

U.S. Army Corps of Engineers Regulatory Branch Attention: Jim Monroe 1325 J Street, Room 1444 Sacramento, CA 95814-2922

## SUBJECT: DRAFT EIR/EIS FOR THE DELTA WETLANDS PROJECT

Dear Mr. Sutton and Mr. Monroe;

We appreciate the opportunity for the East Bay Municipal Utility District (District or EBMUD) to review the draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Delta Wetlands (DW) Project. The following are the comments from the District:

Mokelumne Aqueducts Safety The safety of the Mokelumne Aqueducts on Woodward Island and Orwood Tract are of great importance to the District because the aqueducts are the critical water supply lines to the East Bay. The draft EIR/EIS mentioned that DW has been collecting baseline groundwater data on islands adjacent to the DW islands since 1989 and will implement certain seepage monitoring and control measures in conjunction with the operation of the project (Pages 3D-4 & 3D-8 to 10). The background piezometers indicated in Figure 3D-3 are far apart and none of them are near to the Mokelumne Aqueducts on Woodward Island or Orwood Tract, the data collected from these piezometers are not sufficient to be used as a basis to assess the impacts on the aqueducts due to the implementation of the DW project. Also, there is not enough information in the draft EIR/EIS to determine that the Seepage Performance Standards and the monitoring system and monitoring protocol are adequate to protect the safety of the Mokelumne Aqueducts. EBMUD does not agree with DW's conclusion that Impact D-2: Potential for Seepage from Reservoir Islands to Adjacent Islands, is less than significant.

DW needs to demonstrate, to the satisfaction of EBMUD with supporting information, the adequacy of:

the derivation of the Seepage Performance Standards;

375 ELEVENTH STREET . OAKLAND . CA 94607-4240 . (510) 287-1127 . FAX (510) 287-1275
P.O. BOX 24055 . OAKLAND . CA 94623-1055
BOARD OF DIRECTORS JOHN A. COLEMAN . KATY FOULKES . JOHN M. GIOIA
FRANK MELLON . NANCY J. NADEL . MARY SELKIRK . KENNETH H. SIMMONS

C6-1

C6-2

State Water Resources Control Board U.S. Army Corps of Engineers December 14, 1995 Page 2

- o the philosophy and technical details of the seepage control and monitoring system with regard to its design and operation, including, but not limited to, geological conditions, locations and depths of piezometers, frequency of monitoring, etc.
- o the protocol for dissemination of information and for coordination of efforts to implement remedial measures should the monitoring results exceed the acceptable standards. As a minimum DW should be required to submit this information to the SWRCB, and other interested parties (such as EBMUD), as part of its Annual Progress Report by Permittee.

With respect to the erosion of the Delta levees (particularly those on Woodward Island and Orwood Tract) in connection with DW's operations, DW considers that the impact is less than significant (Impacts B-2 & D-4). However, failure of DW's levees would present considerable risks to the water supply to EBMUD's 1.2 million consumers. Consequently, mitigation measures should be added to require monitoring of actual operation to ensure that the installed facilities do operate as designed, and DW should be required to take immediate remedial action if erosion of the levees or the channel bottom is observed.

Improvement to Delta Levees to be approved by DSOD In the draft EIR/EIS, it was mentioned that the design of the interior levee along the southern side of State Route 12 must be approved by the Division of Safety of Dams (DSOD)(Page 3E-13), whereas for the improvements to other levees for the storage of water, no explicit reference to DSOD's approval has been mentioned (Page 3D-7). All levees on islands used to store water to an elevation higher than 4 feet above mean sea level are classified as dams and are subject to the requirements of DSOD. Approval by DSOD should be included as a mitigating measure.

Entrainment and Entrapment of Mokelumne River Salmon The mitigation measures for Impact F-4: Potential Increase in the Mortality of Chinook Salmon Resulting from the Indirect Effects of DW Project Diversions and Discharges on Flows, includes a restriction against diverting water to fill the reservoir islands during April, May, and June (the Fixed Measures), as well as other Adaptive Measures to be developed. EBMUD's monitoring data indicate that salmon fry start to move down the river as early as February. To reduce the entrainment and entrapment losses of the Mokelumne salmon fry and smolts, the Fixed Measures, as described in Mitigation F-3, should consider mitigating the possible losses of Mokelumne salmon fry and smolts migrating during the period of February through June. Also EBMUD should be included in the development of the Adaptive Measures for the protection of the Mokelumne fishery.

Notwithstanding the proposed mitigations, the siphon intake on Webb Tract is located immediately opposite the estuary of Mokelumne River at the junction with San Joaquin River. An intake at this location imposes significant and obvious impacts on the salmon fry and smolts

C6-2 cont'd

C6-3

C6-4

C6-5

State Water Resources Control Board U.S. Army Corps of Engineers December 14, 1995 Page 3

coming down the Mokelumne River. This intake should be relocated to the west or the south side of Webb Tract outside San Joaquin River so as to reduce this impact.

C6-5

<u>DW Diversion could Potentially Affect the Successful Homing of Mokelumne Salmon</u> DW's diversion during the adult salmon upstream migration period in October and November may obliterate the homing capability of the returning Mokelumne salmon. The draft EIR/EIS should consider mitigation this impact.

C6-6

Diversion by Delta Wetlands when EBMUD is Making Releases for Public Trust Benefits
During times when EBMUD and other upstream senior water rights holders are required to
release water for fishery or other Public Trust benefits, DW's diversion, even though such
diversions may be consistent with the objectives of the then current Water Quality Control Plan,
will nullify, in whole or in part, the benefits created by such releases. DW should include in the
draft EIR/EIS means to ensure that the operation of the DW project shall not result in any
reduction to the beneficial effects of these releases, and to demonstrate that its operation shall not
require, or cause to require, the senior water rights holders to make additional releases to
maintain the ecosystem of the Delta.

C6-7

American River On page 2-12 in Appendix 2, the statement "However, the current EBMUD Board has decided not to divert water from the American River at this time." is not accurate and should be deleted. In Board Motion 192-95 (copy attached) dated September 12, 1995, the Board directed the staff, among other things, to initiate preliminary design, prepare project-level environmental documentation, and other actions for constructing a pipeline connection between the Folsom South Canal and the Mokelumne Aqueducts for the purpose of delivering water to the customers of EBMUD.

C6-8

Computer Modelling DW uses many computer models in the analyses in the draft EIR/EIS. Since EBMUD has no access to the computer models used by DW, EBMUD has to assume that the results of model analyses are representative. However, this does not imply that EBMUD endorses or accepts that these computer models are adequate and relevant.

C6-9

If you have any question, please contact Jon Myers (510-287-1121), or John Leung (510-287-1148).

Sincerely,

John B. Lampe

Director of Water Planning

JBL:JKL:jkt W: VKL\DWETLND2 Attachment State Water Resources Control Board U.S. Army Corps of Engineers December 14, 1995 Page 4

CC:

John Winther Delta Wetlands 3697 Mt. Diablo Boulevard, Suite 320 Lafayette, CA 94549

Byron Buck CUWA 455 Capitol Mall, #705 Sacramento, CA 95814

Richard A. Denton CCWD PO Box H2O Concord, CA 94524

# ACTION SUMMARY REGULAR MEETING OF THE BOARD OF DIRECTORS September 12, 1995

Agenda Item	<u>Motion</u>	Action			
I.	180-95	Approved the Minutes of the regular meeting of August 8, 1995 and the special meetings of July 18 and August 14, 1995.			
3.	181-95	Filed the report of the fund balance and activity for the System Capacity Charge Fund, the Water Conservation and Development Fund, and the Wastewater System Equipment Replacement Fund for FY95 issued August 28, 1995.			
4.	182-95	Contract awarded to Corporate Express of the West, Inc. at an estimated annual amount of \$380,000 per year for supplying and delivering office supplies beginning October 1, 1995 through September 30, 1998 for a three-year period under Proposal No. 9522.			
6.	183-95	Authorized a sole source agreement with BancTec Service Corporation in the amount of \$125,000, for a 33-month period to maintain the bill payment center's terminals, computers and customized software beginning October 1, 1995 and ending June 30, 1998.			
7.	184-95	Authorized contracts with Cellular One and GTE Mobilnet at a total estimated cost of \$660,000 for cellular telephone services for a three-year period from October 1, 1995 through September 30, 1998.			
9.	185-95	Contract awarded to Metrocall at a total estimated cost of \$135,000 for District-wide pager services for a three-year period commencing October 1, 1995.			
10.	186-95	Renewed contracts with ACT 1 Personnel Services and Diversified Personnel Services, Inc. at a combined amount of \$144,086 to provide temporary clerical assistance for a one-year period from July 1, 1995 through June 30, 1996.			
12.	187-95	Authorized the purchase of copper tubing at an estimated cost of \$150,000 on the open market for the period of October 1, 1995 through September 30, 1996.			
13.	188-95	Authorized Amendment No. 2 to the agreement with the Mark Group, Inc. to increase the ceiling to \$375,000 for additional work preparing the Trench Spoils Management Plan.			

Page 1 of 3

Agenda	Item Motion	Action
14.	189-95	Authorized the continued employment of Liebert, Cassidy & Frierson as special counsel for an amount not to exceed \$125,000.
2.	190-95	Filed correspondence with the Board of Directors.
8.	191-95	Directed staff to enter into negoations with Geotopo, Inc., Oakland, CA for consulting services to develop a Geographic Information Systems Strategic Plan.
20.	192-95	Directed staff to undertake the following actions consistent with the Staff Report for the Board of Directors Workshop on the EBMUD Water Supply Management Program Action Plan, held on September 12, 1995:
		Initiate preliminary design, prepare project-level environmental

- Initiate preliminary design, prepare project-level environmental documentation and initiate applicable permit processes and USBR contract modifications for a pipeline connection between the Folsom South Canal and the Mokelumne Aqueducts for the purpose of delivering water to the customers of EBMUD as a stand-alone project not dependent upon any additional water supply project components;
- Continue negotiations with San Joaquin County interests regarding a joint EBMUD/San Joaquin County conjunctive use project to provide additional storage to meet EBMUD's need for additional water;
- Initiate discussions with Sacramento-area interests regarding a potential joint EBMUD/Sacramento-area conjunctive use project to provide additional storage to meet EBMUD's need for additional water, including negotiations with Sacreamento Area Water Forum and San Joaquin County interests on a multi-regional water solution that can be implemented in the near-term, based on a "Freeport South" alternative that does not include an extension of the Folsom South Canal;
  - Intiate project-level studies for raising Pardee Dam to provide additional storage to meet EBMUD's need for additional water, while simultaneously evaulating Middle Bar and Duck Creek Reservoirs as possible alternatives to raising Pardee, and make further recommendations as to the best reservoir option by December 1995.

			·	
Agenda Item	Motion		Action	
22.	193-95	Approve Program	ed the following revisions to the District's Residential Backflow	
		•	District will reimburse up to \$400 each for all customers who registered their wells and absorbed on-going administrative costs;	
		•	Customers with wells pay for annual testing (\$45 to \$75 per year depending on site differences); and	
		•	All well owners identified in the future to pay costs for installation and annual testing.	
21.	194-95	Approv Mainter	ed the following for construction services for the Adeline nance Center Project:	
		21.1	Contract awarded to Walsh-Pacific Construction-Schedule II in an amount of \$25,417,000 for Design/Build Project Construction under Specification No. 1687.	
		21.2	Authorized agreement with Consolidated CM in an amount not to exceed \$500,000 to provide construction management/inspection support services.	
		21.3	Amended agreement with AGS, Inc. in an amount not to exceed \$30,000 to provide geotechnical support services for construction.	
	Distriction		Action	
Agenda Iter	n Resolution			
11.	32935-95	Authorizing sale of surplus property (Altura Reservoir site) to Robert and Alma Lasher.		
15.	32936-95	Confirming appointment of Dennis M. Diemer as Interim General Manager. The effective date is September 16, 1995.		
16.	32937-95	Appointing Dennis M. Diemer to Retirement Board.		

Lynelle M. Lewis, Secretary

September 13, 1995

#### **East Bay Municipal Utility District**

C6-1. The commenter is referring to information or analysis in the 1995 DEIR/EIS that was replaced or augmented by the 2000 REIR/EIS. Appendix H, "Levee Stability and Seepage Technical Report", of the 2000 REIR/EIS presents a new analysis of the potential seepage impacts of Delta Wetlands reservoir operations and an evaluation of the effectiveness of the proposed seepage performance standards. Based on this analysis, a new mitigation measure is recommended to improve the proposed seepage control system and reduce potential impacts of the project to a less-than-significant level. Also, the commenter should note that information from both background monitoring wells and seepage monitoring wells (see Figure 3D-3 in Chapter 3D of Volume 1 of this FEIS) would be used to establish baseline groundwater data against which project impacts would be determined. See Chapter 3D of FEIS Volume 1.

Delta Wetlands and EBMUD submitted a protest dismissal agreement to the SWRCB during the water right hearing. Acknowledging the importance of the Mokelumne Aqueduct and the desire to reduce risk to this structure, the agreement directs that Delta Wetlands install more seepage monitoring wells (i.e., reduce the spacing between monitoring wells) where the distance across a waterway from a Bacon Island levee to a neighboring levee is less than 1,200 feet. As a result, more seepage monitoring wells would be installed on Woodward Island. The SWRCB included some of the terms of the protest dismissal agreement in the terms and conditions of the Delta Wetlands water right permit.

**C6-2.** See response to Comment C6-1 above. As described in the 1995 DEIR/EIS and the 2000 REIR/EIS (see Chapter 3D in Volume 1 of this FEIS), Delta Wetlands would be responsible for implementing remedial measures to control seepage. Delta Wetlands would form a technical review committee to review groundwater monitoring data collected during the operation of the project; this committee would monitor and review the effectiveness of the remedial measures.

The protest dismissal agreement entered into by Delta Wetlands and EBMUD proposes more details regarding the structure and duties of a technical review committee, identified in the agreement as the "Reservoir Island Monitoring and Action Board". Also, according to the Delta Wetlands and EBMUD protest dismissal agreement, Delta Wetlands would make groundwater data publicly available via the Internet or similarly accessible means. As described above, the SWRCB included some of the terms of the protest dismissal agreement in the terms and conditions of the Delta Wetlands water right permit.

C6-3. As described in Chapter 2, "Delta Wetlands Project Alternatives", of the 1995 DEIR/EIS and of FEIS Volume 1, Delta Wetlands would conduct routine inspections and maintenance of the reservoir island levees and siphon and pump stations as part of the proposed project. These inspections would be used to detect any erosion problems that occur as a result of project operation, and remedial actions such as placement of erosion protection material or operational changes would be taken immediately. Additionally,

Appendix H, "Levee Stability and Seepage Technical Report", of the 2000 REIR/EIS discusses monitoring and maintenance requirements for the seepage monitoring and control system.

The 2000 REIR/EIS impact analysis includes the recommendations presented in Appendix H for modifying Delta Wetlands' proposed seepage monitoring program and seepage performance standards as a mitigation measure for potential project impacts.

- **C6-4.** The commenter is correct in stating that DSOD would need to approve the design for all levees used to store water to an elevation greater than 4 feet above sea level. See response to Comment B7-6 for more information.
- C6-5. In response to the concerns expressed by EBMUD in the 1997 SWRCB hearing on Delta Wetlands' water right applications, the lead agencies directed that Jones & Stokes Associates separately evaluate potential project effects on Mokelumne River chinook salmon. Jones & Stokes Associates' analysis was based on data that EBMUD provided to the lead agencies. The results of the analysis are described in detail in Chapter 5 of the 2000 REIR/EIS (Chapter 3F of FEIS Volume 1). The EBMUD data did not support a conclusion that Delta Wetlands Project operations would significantly affect Mokelumne River juvenile or adult chinook salmon. As described in Chapter 5 of the 2000 REIR/EIS (FEIS Volume 1, Chapter 3F), several FOC terms limit effects of the Delta Wetlands Project on Delta flows during February through June, the period of concern identified by the commenter. As a result, the following terms reduce project effects on outmigrating juvenile chinook salmon:
  - # Delta Wetlands is prohibited from diverting water in April and May.
  - # Diversions are limited during all other months to a percentage of surplus flows and a percentage of outflow, and are also limited to a percentage of San Joaquin River flow during January through March.
  - # Several FOC terms limit indirect effects of Delta Wetlands Project operations on flows in February and March by further limiting diversions during those months based on X2 position, change in X2, March QWEST criteria, and DCC closure.
  - # Delta Wetlands is prohibited from discharging water for export from Webb Tract in January through June.

Additionally, Delta Wetlands is required by the FOC to install fish screens that meet an approach-velocity criterion of 0.2 fps. This combination of measures reduces potential project effects on Mokelumne River juvenile chinook salmon to a less-than-significant level. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for details about these terms.

Despite the protections provided by the FOC, Delta Wetlands and EBMUD negotiated a protest dismissal agreement describing additional measures that Delta Wetlands would take to address EBMUD's concerns about project effects on Mokelumne River salmon. The agreement, submitted to the SWRCB in October 2000, is included in the appendix to this volume. Attachment A of the agreement specifies that Delta Wetlands will implement the following measures to provide further protection against potential project effects on Mokelumne River fisheries:

- # Restrict diversions from the northeastern siphon station on Webb Tract to only those times when the southeastern siphon station is operating at full capacity or when certain other conditions are met.
- # Remove existing agricultural siphons from Bouldin Island and Webb Tract and limit the total number of siphons on Bouldin and Webb Tract under the proposed project.
- # Limit the number of boat docks added to Bouldin Island and Webb Tract.
- # Conduct a fisheries monitoring program at Webb Tract.
- **C6-6.** As noted in response to Comment C6-4, the lead agencies directed that the 2000 REIR/EIS include additional analysis of potential Delta Wetlands Project effects on Mokelumne River chinook salmon. The analysis included an evaluation of data on adult migration that EBMUD provided to the lead agencies in 1999. The evaluation of these data did not support a conclusion that adult migration would be affected by project-related changes in the amount of Mokelumne River water present in channels south of the San Joaquin River.

The 2000 REIR/EIS analysis included a worst-case evaluation of project discharges on migration of adult Mokelumne River chinook salmon. The evaluation found that project discharges would have a minimal effect on the proportion of Mokelumne River water moving through the central and south Delta. The analysis concluded that project operations may slightly reduce the proportion of Mokelumne River water present in the central Delta but that such reductions would have a negligible effect on chinook salmon. Furthermore, Delta Wetlands would release water only infrequently in winter. See Chapter 5 of the 2000 REIR/EIS (Chapter 3F of Volume 1 of this FEIS) for details about this analysis.

Despite the conclusions described in the 2000 REIR/EIS, Delta Wetlands and EBMUD negotiated a protest dismissal agreement describing additional measures that Delta Wetlands would take to address EBMUD's concerns about project effects on Mokelumne River fisheries. See response to Comment C6-5 for more information.

C6-7. Delta Wetlands Project operations would be prohibited from interfering with operations conducted by the SWP and CVP and other existing holders of prior water rights (e.g., EBMUD). Project operations would not be allowed to affect the ability of those holding prior water rights to comply with Delta water quality standards or with requirements for the protection of biological resources. The NEPA and CEQA analysis assumes that Delta Wetlands would not interfere with DWR's and USBR's rights, compliance with the 1995 WQCP, compliance with terms and conditions (e.g., take limits) specified in the biological opinions issued by NMFS and USFWS on the effects of SWP and CVP operations on winter-run chinook salmon and delta smelt, or operation of upstream reservoirs.

Since this comment was submitted, EBMUD and Delta Wetlands have signed and submitted to the SWRCB a protest dismissal agreement that describes measures, including restrictions on Delta Wetlands diversions, to ensure that project operations would not adversely affect EBMUD's actions to protect and enhance the lower Mokelumne River anadromous fishery.

**C6-8.** The commenter is referring to the discussion of programs and studies that influence the cumulative environment in the Delta in Appendix 2 of the 1995 DEIR/EIS. Since the publication of the 1995 DEIR/EIS, EBMUD has proposed the Supplemental Water Supply Project to obtain water supplies from the American River. The project was analyzed in a 1997 draft EIR/EIS. In response to comments on the draft document, EBMUD and USBR have prepared an additional analysis. A final decision on the project is pending.

As stated in Appendix 2, the need for the Delta Wetlands Project would continue even with implementation of this and other programs described in the 1995 DEIR/EIS and the 2000 REIR/EIS.

C6-9. General descriptions of the computer models used in the 1995 DEIR/EIS analysis are included in the sections entitled "Impact Assessment Methodology" in Chapters 3A, 3B, 3C, and 3F of the 1995 DEIR/EIS and of FEIS Volume 1 and in the technical appendices that accompanied these chapters in the 1995 DEIR/EIS. The models used are available on the compact disc that was produced for the 1997 water right hearing. These models have been revised for the 2000 REIR/EIS and are available from the SWRCB.

### BRADFORD RECLAMATION DISTRICT NO. 2059

504 Bank of Stockton Building 311 East Main Street Stockton, California 95202 (209) 943-5551

December 14, 1995

State Water Resources Control Board Division of Water Rights Attention: Jim Sutton P.O. Box 2000 Sacramento, CA 95812-2000

U.S. Army Corps of Engineers Regulatory Branch Attention: Jim Monroe 1325 J Street, Room 1444 Sacramento, CA 95814-2922

> RE: Comments on Draft Environmental Impact Report and Environmental Impact Statement For the Delta Wetlands Project

#### Gentlemen:

Bradford Reclamation District No. 2059 (hereinafter referred to as R.D. #2059) filed its Protest to Applications 29061, 29062, 29063 and 29066 of Bedford Properties to appropriate from various rivers, sloughs, cuts and channels of the San Joaquin River Delta at points on Bouldin Island, Webb Island, Holland Island and Bacon Island.

Bradford Reclamation District No. 2059 is a reclamation district organized and existing in accordance with the Reclamation District Act, as found in the California Water Code commencing with Section 50,000. The District encompasses all of Bradford Island and contains approximately 2,051 acres, 7.4 miles of levees and has approximately 58 landowners, many of whom reside on the Island.

Bradford Island is located immediately west of Webb Tract (one of the reservoir islands within the Project) across Fisherman's Cut. On the north and west of Bradford Island is the San Joaquin River, the main ship channel to the Port of Stockton.

Access to Bradford Island is only by boat. R.D. #2059, in conjunction with Contra Costa County and Reclamation District No. 2026 (Webb Tract), operates the Delta Ferry Authority which provides ferry service from Jersey Point to Bradford Island and Webb Tract.

Bradford Reclamation District No. 2059, along with several landowners on Bradford Island, filed Protests to the Applications of Bedford Properties, now Delta Wetlands, for the operation of the Project as described in the Draft Environmental Impact Report and Environmental Impact Statement for the Delta Wetlands Project, dated September 11, 1995 (herein referred to as the "Report and Statement").

Bradford Reclamation District No. 2059 makes the following comments and expresses the following concerns to the Report and Statement as it relates to Bradford Island:

# I. BOAT TRAFFIC

In the Summary (page S-3), Project Alternative describe Alternatives 1 and 2 as including the following:

"Portions of the habitat islands and the reservoir islands would support recreational activities. Up to 38 private recreation facilities may be located on the perimeter levees of all four islands. These recreation facilities, with up to 40 bedrooms each, will include boat docks in adjacent channels, with 30 boat berths, and boat docks on the island interiors, with up to 36 boat berths, that may be operated year round."

In reviewing the impact of such a project, your attention is drawn to Chapter 3L, and in particular to Impact L-7 on page 3L-12:

"Impact L-7: Increase in Boat Traffic and Congestion on Delta Waterways during DW Project Operation. Implementation of Alternative 1 would result in the addition of 1,116 boat trips on a peak summer day to waterways in the DW project vicinity. Based on estimated recreation use it is estimated that boat trips would increase by approximately 5% over existing

conditions. Also, construction of the recreation facilities would restrict boat speeds on up to approximately 8 miles of Delta waterways. Restricted speeds, combined with boats moving into and out of waterways at the DW facilities, would create boat congestion on days of heavy recreational use. Therefore, this impact is considered significant and unavoidable." (emphasis added)

"Mitigation. No mitigation is available to reduce this impact."

This Report accepts the fact that the addition of the recreational facilities described in the Summary above, and that no mitigation is available to reduce this impact.

Reclamation Districts have long contended that one of the greatest impacts on its levees is boat traffic. As the number of boats increase, and the size and speed of those boats also increase, the surrounding levees are negatively impacted.

Reclamation Districts find that boat traffic in the channels surrounding their levees impacts the Districts in the following ways:

- 1. The wave wash from boat wakes cause the levees to erode and the levee riprap to slip into the water leaving the levees exposed to further erosion.
- 2. The cost of repairing levees and replacing levee material is continually increasing when monetary resources are declining.
- Reclamation Districts are restricted in making repairs to its levees without providing substantial wifelife mitigation and habitat at very costly expenditures to the District.
- 4. Some levees are constructed of peat and/or sand material and are therefore very fragile. Increased boat traffic is particularly harmful to such levees.

Bradford Reclamation District No. 2059 is one of those districts which have fragile levees and very limited funds with which to maintain its levees. To permit the additional recreational uses described in the Summary and concluding that it will have a significant but unavoidable impact is unacceptable.

C7-1

Who is going to assist R.D. #2059 in the added costs of maintaining its levees, both in replacing the washed-away materials and the significant financial impact to the District in meeting all of the habitat mitigation requirements placed upon it in order to restore the eroded levees?

C7-1 cont'd

Bradford Reclamation District respectfully suggests that this Report and Statement does not adequately address the impact of increased boat traffic on the levees of neighboring islands.

#### II. SEEPAGE

It must be recognized that if Webb Tract is flooded, it will result in increased seepage on adjoining islands, and in particular on Bradford Island. This is a fact, for in 1980 when Webb Tract flooded, that very thing occurred on Bradford Island.

This is recognized in the Report and Statement in Chapter 3D on page 3D-13, where it is stated:

"An engineering model (SEEP) was used by HLA (1989) to analyze seepage potential of water storage on Webb Tract across Fishermans Cut to Bradford Island. location was identified as being particularly sensitive because of the short seepage distance across Fishermans Cut. Fixed hydraulic levels were tested under a range of permeability conditions of soil materials to determine the effect of flooding and exposed borrow pit excavation. The model indicated that both hydraulic heads and seepage levels in sands on Bradford Island would increase as a result of flooding of Webb Tract. This analysis assumed a water storage elevation of +4 feet based on a previous project description; however, the currently proposed water storage level of +6 feet would not alter the results of the study (Tillis pers. comm.). levels would still increase on Bradford Island as a result of the proposed +6 feet water storage under Alternative 1." (emphasis added)

So the question is not "if there will be seepage" but rather how much seepage and what can be done to protect Bradford Island.

This Report and Statement suggests that the appropriate mitigation efforts is that of installing a Seepage Interceptor Well System along the western side of Webb Tract and piezometers along the eastern side of Bradford Island. There is no established basis for determining that such a mitigation effort will be adequate to prevent seepage onto Bradford Island.

C7-2

The Report and Statement also provides on page 3D-10 other potential mitigation efforts for controlling seepage including (1) installing relief wells at regular spacings near the toes of existing levees on neighboring islands; (2) constructing toe berms with an internal drainage system on neighboring islands; (3) lowering the design pool elevation on the DW reservoir islands; (4) developing wetland easements adjacent to levees on neighboring islands; (5) purchasing farmlands affected by increased seepage; (6) constructing a combination of seep and interior ditches and increasing pumping rates; (7) installing clay blankets; and (8) installing impervious cutoff walls through project island levees.

The fact that so many different and varied alternatives are suggested as a means of mitigating the effect of seepage is an indication that they recognize that there is no simple answer to the problem.

Seepage will have a major impact on Bradford Island. Too much water will not only weaken the District's levees and substantially increase the District's expenses required to maintain and operate its drainage facilities, but will also be detrimental to the agricultural crops and livestock on Bradford Island.

C7-3

R.D. #2059 knows that if Webb Tract is flooded that Bradford Island will find itself faced with an unsurmountable burden — the burden of establishing proof that the seepage on Bradford Island is caused by the flooding of Webb Tract.

**C7-**4

Engineers will tell you that water seepage from point A to point B is not the same as following a pipe between two points. Water and the resulting hydraulic head can translate through many layers and strata of earth and come up some distance from the point from which it entered. Seepage resulting from the flooding of Webb Tract will not only affect the land on Bradford Island immediately adjacent to Fishermans Cut, but could also affect land anywhere within Bradford Island. As a result it would be nearly impossible to solve the problem of seepage on Bradford Island with interceptor wells, relief wells, toe berms, clay blankets or impervious cutoff walls through the levees. Many of the proposed mitigation efforts would require the construction or installation of mitigating devices to or near the levees of R.D. #2059 or the taking of private property on Bradford Island.

C7-5

C7-6

In conclusion, Bradford Reclamation District No. 2059, and the landowners on Bradford Island, do not want and should not be put in the position of having to prove that increased seepage is in fact coming from the flooding of Webb Tract in order to protect its property rights. The Project should not be approved without substantial and proven mitigation measures that will provide adequate protection to Bradford Island from seepage.

C7-6 cont'd

#### III. INCREASE SALINITY

The Report and Statement acknowledges that the Project will result in the increase of salinity at Jersey Point.

The life and financial success of Bradford Island is based upon the growth of crops, hay and pasture supporting livestock and each of these require a supply of good quality of water. Increases of salinity in the water surrounding Bradford Island will have a negative impact upon those items.

Bradford Island sits precariously between the salt water of the Suisun Bay on the west and the fresh water of the Sacramento-San Joaquin Delta on the east. It is recognized that if a substantial amount of fresh water is taken out of the channels upstream from Bradford Island — such as Webb Tract and Bacon Island — the salt water on the western side of Bradford Island will move further and further upstream.

Any operation of the Project must contain foolproof measures to protect the supply of good quality water for Bradford Island.

The agricultural life of Bradford Island supports the economic livelihood of the island. Failure of the landowners on Bradford Island to support their agricultural interests will result in their inability to meet the R.D. #2059 annual assessments which are used to maintain District levees, the District pumps and canals, and the District's share of the ferry.

#### CONCLUSION

The Report and Statement not only do not adequately address the impact of this Project on Bradford Island, but it is entirely silent on how problems are to be resolved. There is no foolproof

7 9

C7-7

C7-8 cont'd

method of guaranteeing that R. D. #2059 and its landowners will have any recourse to protect themselves without protracted and costly litigation, during which the adverse effects will continue unabated. The Report and Statement should include a definitive dispute resolution process that will protect the adjoining landowners pending the outcome of that process.

The burden of proof and all costs to and damages of R.D. #2059 created by the Project must not be borne by the District.

R.D. #2059 respectfully requests that the Report and Statement must not be approved without substantial and proven mitigation measures for addressing the concerns raised in this letter by Bradford Reclamation District No. 2059.

Yours very truly,

BRADFORD RECLAMATION DISTRICT NO. 2059

By Sunt Julius Brent Gilbert, Trustee

Robert C. Benson, Trustee

By C. Selfort Emisted

#### PROOF OF SERVICE BY MAIL

- I am over the age of 18 and not a party to this cause. I am employed in the county where the mailing occurred.
- 2. My business address is 504 Bank of Stockton Building, 311 East Main Street, Stockton, California 95202.
- 3. I served the attached

Comments on Draft Environmental Impact Report and Environmental Impact Statement for the Delta Wetlands Project

on each person named below by enclosing a copy in a sealed envelope addressed as shown below and

- a. I depositing the sealed envelope with the United States Postal Service with the postage fully prepaid.
- b. placing the envelope for collection and mailing on the date and at the place shown in item 4 following our ordinary business practices. I am readily familiar with this business' practice for collecting and processing correspondence for mailing. On the same day that correspondence is placed for collection and mailing, it is deposited in the ordinary course of business with the United States Postal Service in a sealed envelope with postage fully prepaid.
- 4. a. Date mailed: December 18, 1995
- b. Place mailed: Stockton, California.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Date: December 18, 1995

Rokane Brannon

NAME AND ADDRESS OF EACH PERSON SERVED BY MAIL

State Water Resources Control Board Division of Water Rights Attention: Jim Sutton P.O. Box 2000 Sacramento, CA 95812-2000

U.S. Army Corps of Engineers Regulatory Branch Attention: Jim Monroe 1325 J Street, Room 1444 Sacramento, CA 95814-2922

#### **Bradford Reclamation District No. 2059**

**C7-1.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities". As discussed in Master Response 5, the following mitigation has been proposed in an attempt to reduce impacts associated with boat traffic:

Mitigation Measure: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities. Delta Wetlands shall reduce the total number of outward (channel-side) boat slips proposed on the Delta Wetlands islands by 50%.

Implementation of this mitigation measure would reduce boat traffic and, therefore, the potential for increased costs of levee maintenance for adjacent islands. However, it is not possible to quantify potential increased levee maintenance costs associated with boat traffic.

- C7-2. The commenter is referring to information or analysis in the 1995 DEIR/EIS that was replaced or augmented by the 2000 REIR/EIS. Appendix H, "Levee Stability and Seepage Technical Report", of the 2000 REIR/EIS presents a new analysis of the potential seepage impacts of Delta Wetlands reservoir operations and an evaluation of the effectiveness of the proposed seepage performance standards. Based on this analysis, a new mitigation measure (Modify Seepage Monitoring Program and Seepage Performance Standards) is recommended to improve the proposed seepage control system and reduce potential impacts of the project to a less-than-significant level.
- C7-3. As described on page 3D-3 of the 1995 DEIR/EIS (page 3D-3 of Chapter 3D of FEIS Volume 1), seepage contributes to erosion problems and subsequent levee instability. Additionally, seepage can affect existing agricultural uses by changing groundwater levels. The 1995 DEIR/EIS and the 2000 REIR/EIS recognized the detrimental effects of seepage and addressed the potential influence of the Delta Wetlands Project reservoir islands on seepage to neighboring islands.
- C7-4. The interceptor well system and seepage monitoring program developed for the Delta Wetlands Project are designed to detect changes in water levels caused by the project. This is accomplished by monitoring background locations where the Delta Wetlands Project would not likely influence water levels and comparing those levels to the level on islands adjacent to the Delta Wetlands Project reservoir islands. This system would be used to establish proof of the causal relationship between water storage on Webb Tract and groundwater levels on Bradford Island. See also Chapter 3D of FEIS Volume 1, Appendix H of the 2000 REIR/EIS, and responses to Comments C6-2 and C7-2.
- **C7-5.** The commenter notes that seepage may extend through deeper aquifer formations or may find a path of least resistance to a neighboring island some distance from the levees directly across from the reservoir island.

Delta Wetlands proposes to use a string of interceptor wells at the perimeter of a reservoir island and to measure the wells' effectiveness at distances at least equal to the width of a slough. This approach would create a very wide drawdown area that would act as a sump or low point and should attract most seepage. As noted by the commenter, seepage could occur at other locations or depths not easily mitigated by the initial perimeter well system. However, the basic concepts of the seepage monitoring and mitigation program would apply to this situation. If seepage monitoring by Delta Wetlands or the adjacent reclamation district indicated that the adjacent island's water levels correlated with the filling and emptying of the Delta Wetlands reservoir island (versus changes associated with existing conditions such as weather, irrigation practices, or water levels in adjacent channels), deeper wells could be installed to increase the drawdown area and intercept seepage through much lower aquifers. Another option would be to modify operation of the reservoir islands to avoid the observed seepage effects.

C7-6. The commenter states that "many of the proposed mitigation efforts would require . . . the taking of private property on Bradford Island". The fifth amendment of the U.S. Constitution restricts government from "taking" private property without just compensation. Delta Wetlands does not propose to locate mitigation wells or other devices on private property without the owner's consent.

The purpose of the interceptor well system and seepage monitoring program developed for the Delta Wetlands Project is to detect changes in water levels caused by the project and mitigate those changes. The data collected by monitoring wells on the levees of Delta islands would be used to determine the influence of the Delta Wetlands Project on groundwater levels. At the start of Delta Wetlands' groundwater monitoring program, Delta Wetlands sought permission from reclamation districts to install piezometers (i.e., monitoring wells) on nearby islands. Most districts responded favorably and allowed Delta Wetlands to install piezometers on their island, but a few, including Bradford Island's reclamation district, did not permit the installation of piezometers. Delta Wetlands received permission to install groundwater monitoring wells on the following islands:

- # Bethel Island,
- # Hotchkiss Tract,
- # Holland Tract,
- # Veale Tract,
- # Palm Tract.
- # Woodward Island,
- # Upper Jones Tract,
- # McDonald Island,
- # Mandeville Island,
- # Quimby Island,
- # Venice Island,
- # Empire Tract,
- # Terminous Tract,

- # Bouldin Island,
- # Staten Island,
- # Grand Island, and
- # Andrus Island.

This information indicates that most neighboring landowners and/or reclamation districts would be willing to allow Delta Wetlands to install monitoring wells on their islands. Also, monitoring wells can be placed either on the levee of a neighboring island or beyond the toe of the neighboring levee; therefore, Delta Wetlands can approach both the reclamation districts, which have jurisdiction over the levees, and the adjacent landowners, who have jurisdiction over land beyond the toe of the levee, for permission to place a well.

In those areas where the landowner and the reclamation district on a neighboring island do not allow Delta Wetlands to install seepage monitoring wells, monitoring wells would be installed on the Delta Wetlands reservoir island levees. As determined by the seepage analysis in Appendix H of the 2000 REIR/EIS, the spacing of interceptor wells on the Delta Wetlands reservoir islands depends on local conditions; however, spacing would be approximately 160 feet on center, which provides enough space to install monitoring wells between the interceptor wells. Delta Wetlands would collect groundwater data from the interceptor wells and the monitoring wells on the reservoir island to determine the average head beneath the reservoir island levee. This information could be used to demonstrate whether the water table at the edge of the reservoir island was within its historical range.

C7-7. As described in Chapter 3C of the 1995 DEIR/EIS and of FEIS Volume 1, the potential effects of Delta Wetlands Project operations on salinity were assessed for Chipps Island, Emmaton, Jersey Point, and Delta exports. Bradford Island is adjacent to Jersey Point; therefore, the potential effects of project operations on salinity described for Jersey Point are directly applicable to salinity at Bradford Island. The largest effects of the Delta Wetlands Project on salinity would occur during diversions to the reservoir islands. These potential effects would be reduced by implementation of Mitigation Measures C-1, C-2, and C-3, which would ensure that diversions are adjusted to preclude significant increases in salinity at Chipps Island, Emmaton, and Jersey Point, respectively.

Additional measures (FOC) for protection of fish habitat have been developed through the ESA consultation process. These measures limit the distance that the salinity gradient can move upstream; therefore, they reduce the change in salinity that would be observed at Bradford Island. The FOC provide substantial protection against salinity intrusion during Delta Wetlands diversions by delaying the initial Delta Wetlands diversions until X2 is located downstream of Chipps Island; see response to Comment A7-3. With implementation of the FOC, the estimated effects of project diversions on salinity at Jersey Point would be substantially less than those reported in the 1995 DEIR/EIS, but the impact is still considered significant; see the 2000 REIR/EIS Chapter 3C of Volume 1 of this FEIS.

The Delta Wetlands WQMP provides additional measures to protect salinity conditions in the Delta. See response to Comment C9-17 for more information about salinity protection provided in the WQMP.

C7-8. The commenter requests that the lead agencies include a dispute resolution process as a mitigation measure in the NEPA and CEQA analysis. The physical, environmental effects of the proposed project have been addressed in the NEPA and CEQA documentation, and adequate mitigation has been identified for those impacts. A dispute resolution process does not directly address the physical effects of the project and is not required as mitigation for project effects.

During the 2000 water right hearing, Delta Wetlands and EBMUD submitted a protest dismissal agreement that includes a dispute resolution procedure to identify and remedy levee stability, seepage, and related problems that may be caused by operation of the reservoir islands. This process would be open to any entity or individual, including neighboring reclamation districts, that may be injured by the reservoir operations of the Delta Wetlands Project. As described in the protest dismissal agreement, the Reservoir Island Monitoring and Action Board, a neutral technical engineering advisory panel, would investigate problems purportedly caused by reservoir operations and recommend remedial actions to address problems determined to be caused by Delta Wetlands Project operations. Delta Wetlands and EBMUD requested that this agreement be included in the terms and conditions of permits issued by the SWRCB for the Delta Wetlands Project; the SWRCB incorporated some terms of the agreement into the water right terms and conditions. It should be noted that nothing in the process described in the Delta Wetlands–EBMUD agreement would prevent complaining parties from pursuing judicial remedies in state court.

## Letter C8



## COUNTY OF SACRAMENTO

WATER RESOURCES DIVISION......KEITH DEVORE, Chief County Administration Building 827 Seventh Street, Room 301 Sacramento, California 95814

Phone: (916) 440-6851 Fax: (916) 552-8693 **PUBLIC WORKS AGENCY** 

DOUGLAS M. FRALEIGH, Administrator WARREN H. HARADA, Director Public Works Administration ROBERT F. SHANKS, Director District Engineering TERRY T. TICE, Director County Engineering

C8-1

December 20, 1995

State Water Resources Control Board Division of Water Rights, Third Floor 901 P Street Sacramento, CA 95812-2000

Attn: Mr. Jim Sutton

Comments on the DEIR/DEIS for the DELTA WETLANDS PROJECT SUBJECT:

Dear Mr. Sutton:

Enclosed herewith are comments/questions from Ms. Roberta Hettick of the Sacramento County Water Resources Division regarding the subject project. Included with these comments are several other issues that should be resolved within the EIR/EIS for this project. These issues are as follows:

- The effect this project will have on the 100-year water surface elevations due to the 1) raising and widening the perimeter levees on the reservoir islands. Please note that within the County Floodplain Management Ordinance, there are restrictions on the height levees may be raised and the incremental amount that water surfaces may be increased due to projects. Since Sacramento County is the regulatory agency in charge of enforcing the National Flood Insurance Program's (NFIP) standards and guidelines for the Delta, it must be shown that this project will be in conformance to NFIP standards.
- Sacramento County is currently going through the process of a FEMA map revision for 2) the North Delta area. It will need to be shown what effect this project will have on 100year water surface elevations within the islands and adjacent watercourses, and how these compare to the elevations determined within the previously submitted FEMA map revision.

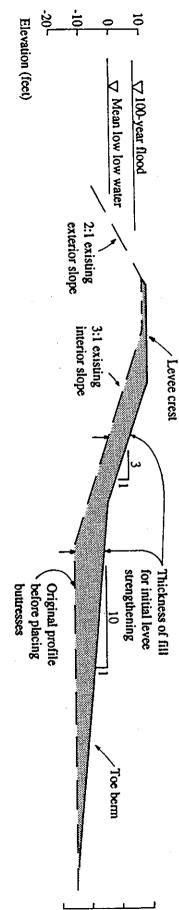
If you have any questions, please feel free to contact Ms. Hettick or myself at (916) 440-6851.

Sincerely,

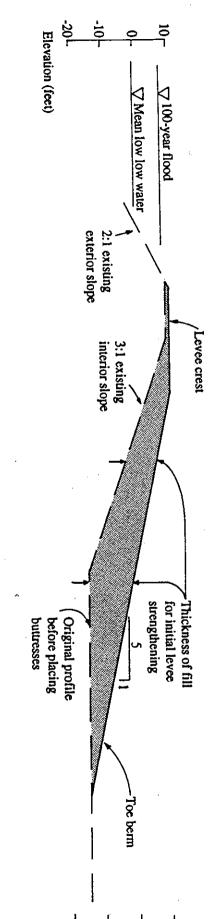
Steven M. Pedretti Senior Civil Engineer

Attachment 302/32.08 SMP:jip

**Example A: Broken-Slope Buttress** 



**Example B: Constant-Slope Buttress** 



Source: Harding Lawson Associates 1993

Examples of Initial Levee Strengthening on Reservoir Islands

Figure 3D-2.

DELTA WIPROJECT Prepared by: Jones & Stokes Associates WETLANDS EIR/EIS

#### **MEMORANDUM**

Date:

December 19, 1995

Subject:

Delta Wetlands Project Draft EIR/EIS Comments

From:

Roberta Hettick, WRD, Drainage Master Planning

To:

Steve Pedretti, WRD, Development

## Comments for Jones & Stokes Associates, Inc.:

Sacramento County is currently conducting flood control studies based on the Sacramento County Storm of Record (1986). Our study boundaries include the Beach/Stone Lakes area downstream to Tyler and Staten Islands, but do not reach further south into the Delta Wetlands Project.

- 1) What design storm was used in the EIR/EIS for modeling of flood events? How does that storm compare to the 1986 Storm of Record used by Sacamento County?
- 2) Sacramento County's concern is that flood event WSELs are analyzed for the immediate area and for points upstream. The normal operation of the proposed reservoirs would be to collect water during high flows, but is there a case scenario which includes water being discharged into the Delta during a flood event? If water were discharged into the Delta during a flood event, the local WSEL would be adversely affected. However, no adverse effects were predicted by the models executed in this EIR/EIS. We feel these "favorable results" are primarily due to two points: 1) Jones & Stokes analysis of monthly average flow as opposed to a Storm of Record peak event, and 2) The assumption that even under worst case conditions, the reservoirs would not pump water into the Delta during a flood event. An investigation of the 100-year flood event in combination with the worst case discharge will be necessary to determine the full effects on local and upstream WSELs.

C8-1 cont'd

- 3) If discharge did occur during the Storm of Record, what affect would it have (in reference to the 100-year water surface elevation) on the neighboring channels, the Georgiana Slough, Snodgrass Slough, and the North and South Forks of the Mokelumne Rivers? Changes to the WSELs by as little as a tenth of a foot can be significant given critical flooding in the area.
- 4) In the past, the raising of levees has had adverse impacts to WSELs in Sacramento County waterways. Please address the impact of the project to WSELs specifically from raising levees, taking into account the above mentioned worst case senario. Please analyze any adverse effects due to construction or operation of the project, specifically with respect to the Georgiana Slough near Isleton, Snodgrass Slough, and the North and South Forks of the Mokelumne River.

cc:

Craig Crouch, Water Resources Division Terri Wegener, WRD, Drainage Master Planning

## **Background to Jones & Stokes Comments**

## Objective:

I reviewed the Draft EIR/EIS and the Appendices for the Delta Wetlands (DW) Project specifically looking for impacts to Sacramento County waterways. I looked for information related to water surface elevation (WSEL) changes caused by the project and other upstream effects.

## **Project Location:**

The project islands are located within Contra Costa and San Joaquin Counties. However, the northerly two islands are immediately adjacent to Sacramento County. The Georgiana Slough indirectly connects the two northern islands with the Isleton area, which is approximately 1.8 miles upstream (please see the attached map). The orientation of the four project islands indicates the greatest impacts (of interest to Sacramento County) would occur on the Georgiana Slough, the San Joaquin River, and the North Fork of the Mokelumne River. The main confluence of the Sacramento River occurs approximately 14 miles downstream of the project (measured along the San Joaquin River).

## Modeling:

Little information relating to specific 100-year WSELs was found. The EIR/EIS uses hydrodynamic models developed specifically for the Delta, by Resource Management Associates (RMA) and Jones & Stokes Associates, Inc. The models incorporate tidal forces, inflow, outflow, water exports and other variables to produce monthly average net channel flows (Delta Wetlands Project Draft EIR/EIS, p.3B-3). The models used do not translate to a direct 100-year WSEL which Sacramento County would normally compare to upstream studies for evaluation of flood impacts.

## Influence of Diversion and Discharge on WSELs:

The chapter titled "Flood Control" dealt primarily with keeping flood waters from breaching the island levees. The normal operation of the reservoirs would be to collect water during high flows, but in a worst case senario, could water be discharged the Delta during a flood event? In this worst case, what effect will it have on the WSEL in the neighboring channels, the Georgiana and Snodgrass Sloughs, and the North and South Forks of the Mokelumne River? The report nearly answers this question in Chapter 3: "Hydrodynamic simulation of channel flows, velocities, and stages during periods of maximum DW diversions and maximum DW discharges indicate that the channel stages most affected by DW operations would be those in the south Delta." . . "The results indicate that stages would not be substantially changed by DW operations. The minimum and maximum stages would be lowered in some channels by as much as 0.25 feet (3 inches). However because these south Delta channels normally experience tidal fluctuations of more than 5 feet, this is not considered a substantial change (5%) for these south Delta channels." (idem, p. 3B-17).

These statements would imply that discharge of waters from the reservoirs would not adversely affect the WSELs of neighboring channels. However these studies used monthly averages for stage, and do not assume dicharge during the flood event. The modeling and comparison of flows using monthly averages implies the peak flood events were not specifically studied in this report, but were averaged into the flows for a given month. In pursuit of more information regarding the modeling

of flood conditions, I placed a call to Jordan Lang of Jones and Stokes Associates, Inc. (leaving a message to call). I was referred to Ken Bogdan and then to Amy Dour. According to Ms. Dour, there is not a significant chance that discharge pumping would occur from the reservoir islands during a flood event. The normal operation of the reservoir would be to collect water during high flows. She did however, encouraged us to include our concerns in an official comment. I also tried to contact Russ Brown at Jones & Stokes to discuss the design storm used in the Draft EIR/EIS modeling. He has not yet returned my call.

### Levees

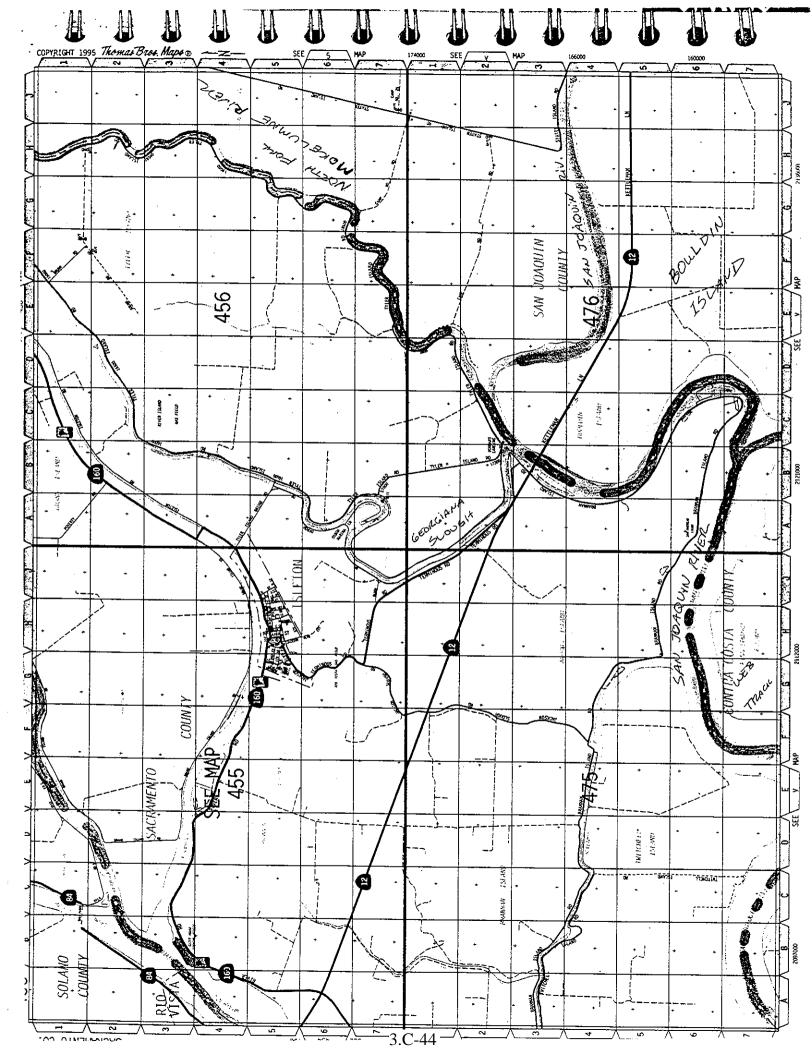
Alternatives 1 and 2 of the Draft EIR/EIS propose "to raise and widen the perimeter levees on the reservoir islands to hold water at a maximum elevation of +6 feet." (idem, p. 2-8) The Draft EIR/EIS did not analyze or mention the effect to neighboring areas of raising reservoir levees. The "Criteria for Determining Impact Significance" (idem, p. 3D-7) do not include any remarks regarding flooding effects to neighboring areas. Cross sections of the proposed levee improvements are attached.

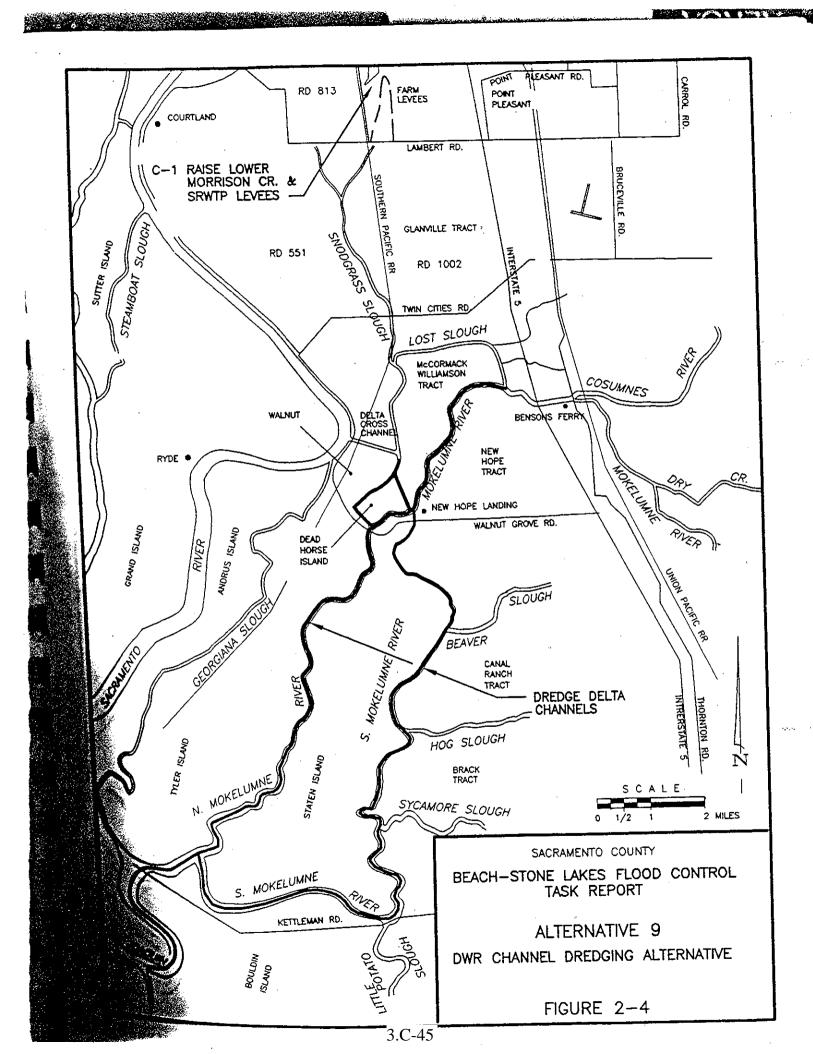
The report did analyze the levee stability of the alternatives and the factor of safety, to the islands themselves. According to the report, when the reservoirs are full or partially full, the risk of levee breach will be lower than existing due to reduced hydraulic head between the Delta channel and the interior of the reservoir (from 16-18 feet of head currently, to 6 feet when the reservoirs are full). (idem, p. 3D-13)

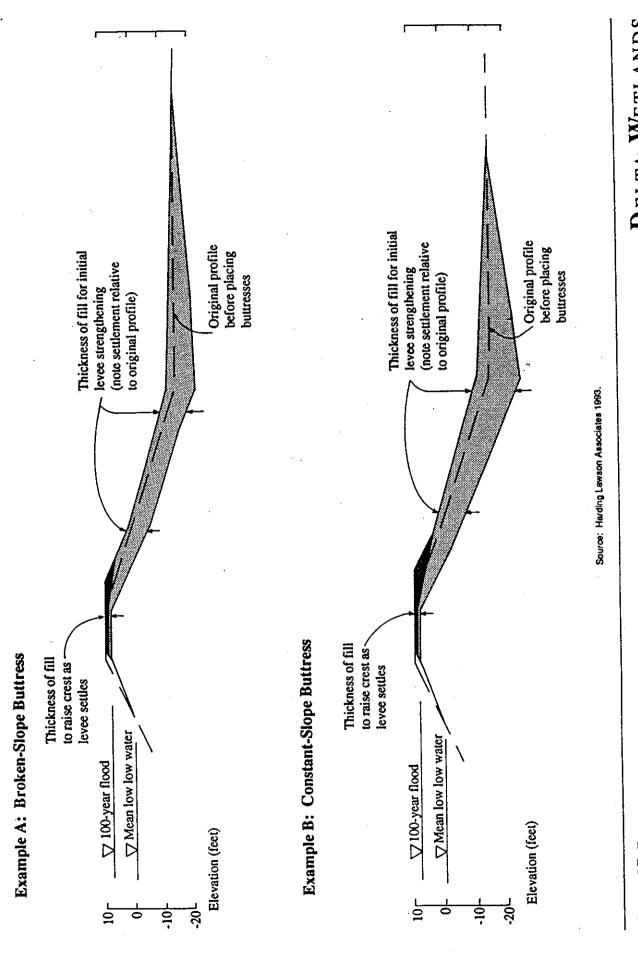
## Summary:

Drainage Master Planning's concern is that flood event WSELs are addressed for the immediate area and for points upstream. The storage of water and management of a wild life habitat would probably have little impact on drainage channels in Sacramento County. If water is pumped out of the reservoirs during flood events, the local WSEL would be adversely affected in the immediate vicinity of the islands, but adverse effects in Sacramento County (or elsewhere) were not predicted by the models executed in this Draft EIR/EIS. An investigation of the 100-year flood event in combination with diversion and pumping activities would be necessary to determine the full effects (a combination of events that has very little chance of occurring, according to Jones & Stokes). It does not appear this type of study was conducted for the Draft EIR/EIS Report. Adverse effects of raising the reservoir island levees should also be addressed in the comments to Jones & Stokes Associates. The net effect of discharge during a peak flood event may not be significant in light of 5 foot WSEL changes due to tidal forces.

Also, the report did make the significant point that the long term effects of this project are unforeseen, since it may be used at a later date for entirely different purposes and under different operating conditions. (Executive Summary for the Draft EIR/EIS, Delta Wetlands Project, p.22)







Examples of Settlement of Initial Fill and Rising Crest with Additional Fill Figure 3D-5.

DELTA WETLANDS
PROJECT EIR/EIS
Prepared by: Jones & Stokes Associates

#### **Sacramento County Water Resources Division**

**C8-1.** The widening of the reservoir islands would not affect the adjacent channel width or 100-year flood level because new levee material would be placed almost entirely on the interior slope of the islands (see Figures 3D-2 and 3D-5 in FEIS Volume 1), not in adjacent channels. Additionally, the proposed levee design for the Delta Wetlands reservoir islands conforms to DWR's Bulletin 192-82 recommendations for flood control in the Delta.

Based on the proposed operation of the Delta Wetlands Project, water would not be discharged into adjacent channels during a flood event. The intent of the Delta Wetlands Project is to capture high floodflows and store them until there is a demand for water to export or outflow. Appendix B1, "Hydrodynamic Modeling", of the 1995 DEIR/EIS presents the results of simulated changes in water surface elevations during periods of Delta Wetlands' diversions and discharges; see Table B1-9, "Simulated Stage Differences during Periods of Maximum Delta Wetlands Diversion (9,000 cfs) and Maximum Delta Wetlands Discharge (6,000 cfs) at Selected Nodes of the RMA Delta Hydrodynamic Model". The RMA model uses historical hydrologic information to determine channel flows and stages. As illustrated in the table, the maximum simulated increase in water surface elevations in the north Delta (i.e., Georgiana Slough and Sacramento River) during Delta Wetlands discharges was 0.01 foot.



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Walter J. Bishop General Manager December 20, 1995

California State Water Resources Control Board Division of Water Rights

P.O. Box 2000

Sacramento, California 95812-2000

Attn: Jim Sutton

U.S. Army Corps of Engineers Regulatory Branch 1325 J Street, 14th Floor Sacramento, California 95814-2922

Attn: Jim Monroe

Re: Draft Environmental Impact Report and Environmental Impact Statement

for the Delta Wetlands Project (dated September 11, 1995)

Dear Mr. Sutton and Mr. Monroe:

This letter and its Appendix set forth the comments of the Contra Costa Water District ("CCWD" or "District") on the Draft Environmental Impact Report and Environmental Impact Statement ("EIR/EIS") for the Delta Wetlands ("DW") Project dated September 11, 1995. This project pertains to Water Right Applications 29061, 29062, 29063 and 29066 dated December 4, 1987 and revised and new applications 30267, 30268, 30269 and 30270, dated August 6, 1993.

The September 1995 Draft EIR/EIS for the Delta Wetlands Project:

- 1. Fails to adequately assess the impacts of the project on CCWD and its customers. The project will result in unacceptable adverse effects on municipal water supplies and damage CCWD and its customers by:
  - a. Impairing the beneficial uses to which the water supplied by CCWD is put.
  - b. Increasing salinity at the District's drinking water intakes by significantly reducing Delta outflow.
  - c. Discharging poor quality water with elevated levels of organic carbon, algae, salt, and possibly other contaminants.

C9-1



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		C9-1 cont'd		
2.	Contains methodological errors and does not adequately address water quality impacts:  a. The document is methodologically flawed because it does not distinguish between the water quality impacts at the District's diversion points and the State Water Project (SWP) and Central Valley Project (CVP) export pumps. The water quality impacts can be significantly different at the different intake locations.  b. THM formation potential and total organic compounds (TOC) impacts are underestimated with respect to future water quality standards.  c. The document improperly deems unacceptable levels of significant water quality degradation to be "acceptable".  d. The document improperly deems a number of impacts to be "acceptable" by using inadequate and/or inaccurate analyses on their potentials for water quality degradation.	C <b>9-2</b>		
3.	Analyzes the Project in a way that does not accurately reflect the likely mitigated operations of the Project. Mitigated measures proposed in the Draft EIR/EIS are likely to change project operations and the corresponding environmental impacts significantly.	C9-3		
4.	Fails to provide adequate mitigation plans for identified significant impacts, including those which have unacceptable adverse impacts on municipal water supplies, and in particular to the District and its customers.			
5.	Fails to identify willing buyer(s) for Project water and, therefore, fails to adequately assess the cumulative environmental and economic impacts of the use of water from the Project.	C <b>9-5</b>		
6.	Fails to provide adequate mitigation measures to protect biological resources that would otherwise be adversely impacted by DW operations.	C <b>9-6</b>		
Detai	of these comments are discussed in the Appendix to this letter.			
In summary, the Draft EIR/EIS is deficient in numerous respects. The Draft EIR/EIS is legally required to contain a <u>detailed</u> mitigation plan to ensure that the project does not significantly affect Delta water quality; that it does not impair the beneficial uses to which the water is put; that it does not adversely affect the users				

of the water supplied by CCWD; that it does not cause unacceptable adverse impacts on municipal and industrial water supplies; that it does not conflict with the operations of the Los Vaqueros Project; and that it would not harm endangered and threatened species. Because of these significant impacts and the lack of sufficient information regarding the mitigated project operations, a new or supplemental Draft EIR/EIS may need to be prepared and circulated for additional review and comment.

C9-7 cont'd

The District appreciates your consideration of these comments. The District would welcome an opportunity to discuss our concerns with you and would be happy to provide any information necessary, especially details concerning the Los Vaqueros Project. Please direct any technical questions to Dr. Richard Denton who can be reached at (510) 688-8187.

Sincerely,

Walter J. Bishop General Manager

WJB/RAD

cc: John Winther

City of Antioch

California Urban Water Agencies

## Appendix.

Detailed Comments of the Contra Costa Water District on the Draft Environmental Impact Report and Environmental Impact Statement for the Delta Wetlands Project dated September 11, 1995.

This appendix consists of five parts:

- I: Summary and overview of the comments of the Contra Costa Water District ("CCWD" or "District") on the Draft Environmental Impact Report and Environmental Impact Statement ("EIR/EIS").
- II: Description of CCWD's existing water system and new facilities under construction.
- III: Description of methodological deficiencies in the Draft EIR/EIS.
- IV: Discussion of impacts of the proposed project and mitigation measures.
- V: Description of deficiencies in the analyses and scope of the Draft EIR/EIS under the pertinent provisions of the California Environmental Quality Act, Pub. Res. Code § 21000 et seq. ("CEQA") and the National Environmental Policy Act, 42 U.S.C. § 4321 et seq. ("NEPA").

# I. SUMMARY OF COMMENTS

The September 1995 Draft EIR/EIS for the Delta Wetlands ("DW") Project:

- 1. Fails to adequately assess the impacts of the project on CCWD and its customers. The project will result in unacceptable adverse effects on municipal water supplies and damage CCWD and its customers by:
  - a. Impairing the beneficial uses to which the water supplied by CCWD is put.
  - b. Increasing salinity at the District's drinking water intakes by significantly reducing Delta outflow.
  - c. Discharging poor quality water with elevated levels of organic carbon, algae, salt, and possibly other contaminants.
  - d. Impairing the operation and degrading the performance of the Los Vaqueros Project.
- 2. Contains methodological errors and does not adequately address water quality impacts:
  - a. The document is methodologically flawed because it does not distinguish between the water quality impacts at the District's diversion points and the State Water Project (SWP) and Central Valley Project (CVP) export pumps.

The water quality impacts can be significantly different at the different intake locations.

- b. THM formation potential and total organic compounds (TOC) impacts are underestimated with respect to future water quality standards.
- c. The document improperly deems unacceptable levels of significant water quality degradation to be "acceptable".
- d. The document improperly deems a number of impacts to be "acceptable" by using inadequate and/or inaccurate analyses on their potentials for water quality degradation.
- 3. Analyzes the Project in a way that does not accurately reflect the likely mitigated operations of the Project.
- 4. Fails to provide adequate mitigation plans for identified significant impacts, including those which have unacceptable adverse impacts on municipal water supplies.
- 5. Fails to identify willing buyer(s) for Project water and, therefore, fails to adequately assess the cumulative environmental and economic impacts of the use of water from the Project.
- 6. Fails to provide adequate mitigation measures to protect biological resources that would otherwise be adversely impacted by DW operations.

## II. CCWD OPERATIONS AND FACILITIES

CCWD operates raw water distribution facilities, water treatment plants and treated water distribution facilities. CCWD supplies raw water to Antioch, Concord, Diablo Water District (serving Oakley), Pittsburg, Southern California Water Company (serving Bay Point), Martinez, parts of Pleasant Hill and Walnut Creek. CCWD serves approximately 400,000 people throughout north-central and east Contra Costa County. Its clients include 10 major industries, 36 smaller industries and businesses, and 50 agricultural users.

The Contra Costa Water District is entirely dependent upon the Delta for its water supply. The Contra Costa Canal system is currently CCWD's principal water supply and delivery system. This system obtains water from unregulated and regulated flows from the Bureau of Reclamation's ("Bureau") Central Valley Project ("CVP") storage releases from Shasta, Folsom, and Trinity Lakes into the Sacramento River. Diversions and rediversions are then made in the Delta to CCWD's system at Rock Slough. Under Water Service Contract I75r-3401 (amended) with the Bureau, CCWD can divert up to 195,000 acre-feet per year

("af/yr") of water from Rock Slough. Currently, CCWD uses between 125,000 and 140,000 af/yr. CCWD can also divert up to 26,780 af/yr of water from Mallard Slough in the Delta. (Water Rights License No. 3167 and Permit No. 19856). The City of Antioch and Gaylord Container, customers of the District, also have water rights permits in the Delta.

CCWD has obtained its water from the Delta since 1940. Delta water is subject to wide variations in salt and mineral concentrations and this water supply has made CCWD and its customers vulnerable to any man-made or natural sources that could degrade Delta water quality. The proximity of the project discharges to CCWD's intakes makes CCWD and its customers the most vulnerable to water quality degradation that would result from the Delta Wetlands project.

Water quality changes in Delta water are noticeable to those who drink the water or use the water in commercial and industrial processes. Degradation in water quality is objectionable to many CCWD customers, costly to all residential and industrial users, and a health risk for some individuals. Degradation impairs the beneficial uses of water supplied by CCWD.

CCWD is committed to supplying its customers with the highest quality water practicable and providing all reasonable protection of the supply from any known or potential source of hazardous contamination. CCWD Resolution No. 88-45 states in part that:

"CCWD is committed to reducing the concentration of sodium and chloride in the District's water, thereby reducing household and landscape irrigation concerns and industrial and manufacturing costs caused by the fluctuating sodium and chloride level of the District's Delta source..."

In May 1987, CCWD's Board of Directors adopted desired quality objectives for water distributed within its service area. The acceptable levels of sodium and chloride were established at 50 milligrams per liter (mg/l) and 65 mg/l, respectively. In 1988, the voter-constituents of CCWD approved the issuance of bonds to finance a \$450 million water quality and reliability project known as the Los Vaqueros Project. The primary purposes of the Los Vaqueros Project are to improve the quality of water supplied to CCWD customers and minimize seasonal quality changes, and to improve the reliability of the emergency water supply available to CCWD. The Los Vaqueros Project consists of a reservoir with about 100,000 acre-feet of storage, a new point of diversion (at Old River south of Highway 4

crossing) in conjunction with the current Rock Slough diversion point, associated water conveyance and delivery facilities, pumping plants and other facilities. (1)

| C9-8

On June 2, 1994, the State Water Resources Control Board issued Decision No. 1629 which gives CCWD additional rights to divert and store water for beneficial uses. The State Board subsequently issued Water Rights Permit No. 20749 and 20750 for filling Los Vaqueros Reservoir from the new intake at Old River near Highway 4 and diversion and storage of the waters of Kellogg Creek. These rights are in addition to the contractual rights to divert and store water furnished through the Central Valley Project. Construction of the reservoir began in September 1994 and it is expected that diversion from the Old River intake will begin in late 1996 or early 1997. Up to 95,850 af/yr may be diverted for storage between November 1 of each year to June 30 of the succeeding year under Permit No. 20749. To meet the objective of 65 mg/l chloride in its water supply, CCWD will divert when water quality at the Old River intake is below 50 mg/l in chloride concentration.

# III. METHODOLOGICAL DEFICIENCIES IN THE DRAFT EIR/EIS

CCWD is concerned that the Draft EIR/EIS contains numerous methodological and technical flaws which affect the descriptions of proposed DW operations, the analyses of environmental impacts of these operations, and, ultimately, the validity of the conclusions reached. To the extent that changes in the methodology or data affect the document's results or conclusions, the Draft EIR/EIS may need to be recirculated for additional review and comment. The following is a description of the document's more significant methodological and technical flaws (materials in the Draft EIR/EIS are referred to in underscored italics):

C9.9

1. The Delta operations model (DeltaSOS) that is used in the Draft EIR/EIS does not have the ability to reoperate upstream reservoirs or account for changes in reservoir storage and demand south of the Delta (page A2-2). Without this information, it not possible to establish the relationship between available export pumping capacity, the ability of Delta Wetlands to sell water south of the Delta, and the resulting

C9-10

(1) CCWD's Rock Slough intake and Contra Costa Canal connection (from the intake to Cypress Road) have been erroneously omitted in Figure 3E-1, Transportation and Water Conveyance Infrastructure in the DW project vicinity, in the Draft EIR/EIS. CCWD's Old River intake and pipeline for the Los Vaqueros Project reservoir (under construction) are also missing and should be clearly identified in that figure.

C9-8 cont'd

environmental impacts. Similarly, it is difficult to assess the possible environmental and water supply benefits of saving water in upstream reservoirs and using DW discharges to provide water for export.

The project proponents need to remodel the Delta Wetlands Project operations by incorporating a DW project node into a Central Valley operations model such as DWRSIM and then rerunning DWRSIM with updated DW operations from DeltaSOS. This process might require several iterations to ensure that changes in exports and flows resulting from DW operations are properly reflected in the reoperation of upstream and south-of-Delta reservoirs, then environmental impacts can be analyzed.

2. The Draft EIR/EIS uses output from Central Valley Operations Study runs from the California Department of Water Resources DWRSIM model as input to DeltaSOS. However, as discussed on <u>page A3-6</u>, intermediate adjustments were first made to the simulated CVP and SWP exports. The simulated exports from DWRSIM runs were apparently increased to prevent an exaggeration of the ability of the DW Project to sell water to south-of-the-Delta users. These adjustments were not modeled to take into account demand or reservoir capacity south of the Delta (see Comment #1 above). The adjustments to CVP and SWP exports also reduced the Delta outflow below that originally simulated by DWR using DWRSIM, and because of the assumed increase in demand, effectively changed the operations studies from an existing level of development to some future condition.

The project proponents need to account for the actual level of demand for south-of-Delta water by incorporating a DW project node into a Central Valley operations model such as DWRSIM and then rerunning DWRSIM with updated DW operations from DeltaSOS. As discussed in the previous comment, this process might require several iterations to ensure that changes in exports resulting from DW operations properly reflect the demand and available storage south of the Delta. The District made the same request in its comments to the December 1990 Draft EIR/EIS on page 6 of CCWD's April 30, 1991 comment letter to Jim Canaday (SWRCB) and Jean Elder (ACOE). Environmental impacts can be fully analyzed when operations are correctly shown.

3. The Draft EIR/EIS treats the Contra Costa Water District's existing intake at Rock Slough and the SWP and CVP export pumps as a single south Delta point of diversion with the same water quality. In reality, the chlorides at the Rock Slough intake to the Contra Costa Canal can be significantly higher than export water quality during periods of seawater intrusion. Conversely, during periods of significant agricultural drainage from the San Joaquin Valley, the land-derived salts at the CVP's Tracy

C9-10 cont'd

C9-11

Pumping Plant may be significantly higher than at Rock Slough. For the District to be able to assess the impact of the Delta Wetlands Project at its Delta diversion points (Rock Slough, Mallard Slough, and the soon to be completed intake at Old River near Highway 4, as well as the intake of the City of Antioch), it is imperative that a more detailed water quality model be used. The District has raised this concern on page 4 in the Appendix of the District's February 10, 1995 letter (Richard Denton to Jim Sutton, SWRCB) reviewing the draft water quality technical appendices.

C9-12 cont'd

More detailed water quality simulations need to be performed, for example, by incorporating a DW operations algorithm into a validated Delta hydrodynamic and salinity model such as the Fischer Delta Model and operating the model over the full historical hydrologic period, 1922-1991. This type of model would provide simulated water quality data for individual locations in the South Delta and elsewhere. Adequate environmental analysis can only occur once an accurate water quality model is available.

4. The Draft EIR/EIS uses a Delta hydrodynamic and salinity model to simulate historical water quality conditions that fails to adequately simulate water quality at the Rock Slough intake to the Contra Costa Canal. The data presented in <u>Figure 3C-13</u> shows substantial disagreement between simulated and measured data using the RMA model, particularly during drought periods with seawater intrusion. The DeltaDWQ model also fails to adequately model Rock Slough chlorides, in particular during periods of agricultural drainage.

C9-13

The analyses need to use a validated Delta hydrodynamic and salinity model such as the Fischer Delta Model to more accurately simulate the historical, existing and with Project conditions in the Delta. Without these corrections, an adequate environmental analysis cannot be done.

5. The methodology used in the Draft EIR/EIS to simulate water quality at western Delta and export pumps does not account for the time lag between salinity changes at these locations. The time lag between Jersey Point and Rock Slough for measured data, for example, is about 14 days, whereas the equations used in the Draft EIR/EIS (pages B2-13) and B2-14) produce simultaneous salinity changes at these two locations.

C9-14

The proponents should compare their EC relationships with those developed by CCWD (discussed on <u>page B2-9</u>) and measured EC data to determine what adjustments should be made to ensure that the time lags in salinity response at different Delta locations are modeled correctly. These adjustments may lead to

significant changes in project operations and environmental impacts which are different from those described in the current Draft EIR/EIS.

C9-14 cont'd

6. The analysis of the impacts of the Delta Wetlands Project on THM formation potential and impacts on total organic compounds (TOC) are underestimated with respect to the proposed Disinfectants-Disinfection By-Products Rule (D/DBP Rule) standards. The impact of the project needs to be assessed relative to the 80  $\mu$ g/l TTHM MCL that takes effect in June 1996 and the 40  $\mu$ g/l MCL that may take effect within a few years.

C9-15

In addition, the D/DBP Rule imposes MCLs for five specified haloacetic acids (HAA), and requires pre-treatment (enhanced coagulation) when the TOC concentration in source water is above 2 mg/l. Phase I of the D/DBP rule will also impose MCLs of 10  $\mu$ g/l for bromate. All these standards have not been discussed or examined in the Draft EIR/EIS. The implications of these new regulations must be examined in detail in the Draft EIR/EIS.

The project proponents need to examine the DW Project's THM, HAA, TOC, and other D/DBP precursor impacts in the context of these reasonably foreseeable regulations.

C9-16

7. The Draft EIR/EIS uses an older version of the Malcolm-Pirnie water treatment plant model to analyze THM production from Delta water. A new set of equations was designed to compensate for the high bromide concentrations in Delta water (<u>page C5-6</u>). The project proponents need to compare the results of the old model with the new model to test the validity of the assumption that recent model improvements are not expected to change the impact assessment results (see <u>page C5-6</u>).

C9-17

8. The thresholds for chloride concentration changes at drinking water intakes is set too high (<u>Mitigation Measure C-4</u>) and will lead to unacceptable harm to the District's customers and to the operations of the Los Vaqueros project. The 90% of standard and 20% change criteria will still lead to significant and unacceptable impacts on water quality and water supply. For example, a 20% change in a chloride concentration of 250 mg/l corresponds to a 50 mg/l increase. Any identifiable increase in salinity or degradation of water quality in the Delta should be considered significant and mitigation measures proposed.

C9-18

9. The Draft EIR/EIS uses analyses which do not accurately reflect the likely mitigated operations of the project. The differences between the environmental impacts of the proposed and mitigated projects are likely to be significant.

10. The Draft EIR/EIS fails to identify willing buyer(s) for project water and, therefore, fails to adequately assess the cumulative environmental and economic impacts of the use of water from the project.

C9-19

## IV. IMPACTS OF THE DELTA WETLANDS PROJECT

The District has identified a number of significant impacts of the Delta Wetlands Project on CCWD's water supply and water quality. These impacts can be classified as (a) impacts caused by DW diversions, (b) impacts caused by discharges from DW islands, and (c) other impacts.

In some cases, the Draft EIR/EIS identifies mitigation measures to avoid or reduce these impacts. However, these mitigation measures are not fully detailed and both the operation and the environmental impacts of the DW Project with these mitigation measures is not presented in the Draft EIR/EIS. Because of the lack of sufficient information regarding the mitigated project operations and the environmental impacts thereof, a new or supplemental Draft EIR/EIS may need to be prepared and circulated for additional review and comment. The following is a description of significant impacts of the DW Project on the District along with suggestions for mitigating these impacts:

C9-20

# A. Impacts of Delta Wetland Diversions

1. The Delta Wetlands Project will increase the salinity at CCWD's Delta drinking water intakes by significantly reducing Delta outflow. Under Alternatives 1 and 2, the maximum diversion rate to the two reservoir islands, Webb Tract and Bacon Island, could be as high as 9,000 cfs for up to 14 days. The operations studies reported in the Draft EIR/EIS suggest that these pumps might be turned on when the Delta outflow is as low as 10,000 cfs, resulting in a significant intrusion of ocean-derived salts. Figure 3C-18, for example, shows increases in chloride concentrations at the export pumps of up to 57 mg/l (October 1978, Table B2-2). This will cause unacceptable adverse impacts on the District's municipal and industrial water supply and the District's customers. It will also significantly impair the operation and degrade the performance of the Los Vaqueros Project by reducing the availability of good quality water for filling the Los Vaqueros Reservoir, and increasing the amount of stored water needed to blend Delta water to 65 mg/l chlorides or 50 mg/l sodium to meet the District's water quality goals.

For these reasons, it is insufficient for DW to propose mitigation that allows increases in chloride concentrations of up to 20% of the applicable objectives (<u>Mitigation Measure C-4</u> on <u>page 3C-27</u>). In the case of the 250 mg/l M&I standard at Rock Slough, this is equivalent to a change of 50 mg/l. A change in chloride concentration of 50 mg/l is an unacceptable degradation of the quality of the District's supply and meeting this criterion would not reduce the impact of the Delta Wetlands Project to a less-than-significant level (as stated on <u>page 3C-27</u> under <u>Impact C-4</u>).

The Delta Wetlands project must adopt acceptable mitigation measures to avoid these significant impacts. For example, these could include allowing Delta Wetlands diversions to storage only if: (1) the 2 ppt isohaline is beyond a given location west of Chipps Island, and (2) a sufficiently protective salinity level at an interior location such as Jersey Point has been met for at least 7 days and continues to be met while water is diverted by DW. These requirements could be expressed in terms of specific conductance at Chipps Island and Jersey Point, and might be consistent with Delta outflows in excess of 20,000 cfs. Similarly, the combined pumping rate on to the reservoir islands could be limited to less than 9,000 cfs or even below 4,000 cfs, or allowable diversions could be a function of outflow. An additional and separate mitigation measure might require that a percentage of all Delta Wetlands discharges be used to increase Delta outflow over that required under the May 1995 WQCP. Such measures need technical and environmental impact analysis.

2. The DW Project may divert water from the Delta during fish-sensitive periods when other water agencies such as CCWD are foregoing some or all diversions or otherwise altering their operations to provide fisheries benefits. The operations studies in the Draft EIR/EIS show Delta Wetlands monthly-averaged diversions in the March through May period at as high as 3,800 cfs (Table A3-7a). During this period, other Delta and tributary diversions are restricted for the protection of fisheries resources. For example, CCWD (operating under its Los Vaqueros water rights permits) will be required to cease all diversions for 30 days where possible during the March-May period, and use stored water from Los Vaqueros Reservoir to meet demand. The District is also restricted from filling the Los Vaqueros reservoir during the period March 15 through May 31. The Los Vaqueros Project biological opinions also restrict filling the Los Vaqueros Reservoir in certain months to periods when the 2 ppt isohaline is west of Chipps Island and Collinsville. The Delta Wetlands Project, as the most junior appropriator, should be required to restrict all diversions during periods when other water users are restricted from diverting, or are required to change their operations for the protection of biological resources. Delta Wetlands operations which detract from or reduce the fisheries and environmental benefits derived from limits on the operations of others must be avoided.

C9-21 cont'd

The project proponents, as the most junior appropriator, should mitigate for these impacts by applying limits on Delta Wetlands diversions that are at least as restrictive as those imposed on other projects. Given the degraded condition of the biological resources of the Delta, the Project should be required to provide a net benefit to these resources.

C9-22 cont'd

3. The Delta Wetlands project may divert fish flows and other public trust flows released by other water agencies, for example the April 15 - May 15 pulse flows required under the May 1995 Water Quality Control Plan.

C9-23

The project proponents should propose mitigation and do the necessary environmental impact analysis to avoid these significant impacts, for example, by limiting Delta Wetlands diversions when other agencies are making public trust releases related to fish passage to and through the Delta.

4. The Delta Wetlands project may cause significant fisheries impacts by changing flow patterns in the western Delta, by changing the salinity cues that are believed to direct fish passage through the Delta, and by actual taking of fish through losses at diversion points and predation losses in the reservoirs and in the channels. Any impacts on fish abundance by Delta Wetlands could lead to more restrictive limits on the diversions of other water users (including the District), thereby reducing its available water supply.

C9-24

The project proponents should propose actions that mitigate these impacts, e.g. monitoring and fish transfer operations if found necessary. Such actions need to include environmental analysis.

## B. Impacts of Delta Wetland Discharges

1. Storage of water on peat islands for extended periods of time will likely result in increased concentrations of organic carbon, algae, salinity and other contaminants. Normal release of this water by DW could have unacceptable adverse effects on municipal water supplies, e.g. by causing increased production of trihalomethanes and haloacetic acids during the water treatment process. This impact must be avoided to assure that the statement on <u>page 2-1</u> that "the DW project would increase the availability of high-quality water in the Delta for export" is valid.

C9-25

Water treatment or other means that ensure that increased concentrations do not significantly impact water utilities should be proposed, and the ability of the project to carry out the mitigation measures should be addressed (including analysis of

environmental impacts). The Draft EIR/EIS needs to give more details of the procedures to limit discharges as needed (<u>Mitigation Measure C-7</u> on <u>page 3C-30</u>). These water quality impacts could also be mitigated by using islands with mineral soils rather than peat soil to store water.

C9-25 cont'd

2. There will be times when the salinity of the discharge from Delta Wetlands islands would exceed that of the receiving water. This will also degrade the District's Delta water supply. Although the District recognizes that there will also be times when the salinity of the discharges may be lower than the receiving water, the negative impacts of Delta Wetlands discharges may not in all cases be fully mitigated by these improvements. The negative impacts need to be analyzed and should be avoided or mitigated. Given the current degraded state of the Delta, the project should only proceed if it can provide a net benefit to water quality.

C9-26

The Delta Wetlands Project should propose mitigation measures to avoid these impacts. For example, these could include (a) allowing Delta Wetlands diversions to storage only if the 2 ppt isohaline is beyond a given location west of Chipps Island, and (b) providing for a sufficiently protective salinity level at an interior location such as Jersey Point to be met for at least 7 days and to continue to be met while water is diverted by DW. These requirements could be expressed in terms of specific conductance at Chipps Island and Jersey Point, and might be consistent with Delta outflows in excess of 20,000 cfs. This mitigation measure will help ensure that only low salinity water is diverted onto the reservoir islands.

Additionally, diversions could be limited to periods when the salinity was below a given threshold and discharges could be limited to periods when the discharge salinity is no more than a given amount above the salinity in the neighboring Delta channels.

3. Discharges from Delta Wetlands islands into shallow channels, e.g. Santa Fe Cut, could cause scouring and increased turbidity in water diverted at Delta water supply intakes. These environmental impacts need analysis.

C9-27

This impact should be avoided, for example, by limiting the discharge velocity and relocating discharge points to deeper channels away from affected water supply intakes.

C9-28

4. The Draft EIR/EIS should also analyze an alternative that terminates or limits agricultural drainage from Delta Wetlands islands. This alternative would help downstream municipal water facilities in meeting future drinking water standards. This alternative would be a No Project-No Intensive Agriculture alternative and could

be compared against other Delta Wetlands Project alternatives, including the No Project-Intensive Agriculture Alternative.

C9-28 cont'd

5. The project proponents should include an alternative that mitigates the impacts of Delta Wetlands discharges by providing a direct connection between the reservoir islands and the identified export locations. This would avoid water quality impacts to Delta users. From water quality considerations, islands with mineral soils would be preferable to peat soil islands.

C9-29

# C. Other Impacts

1. The District is concerned about any possible contamination from DW recreational boating facilities reaching its water supply intakes (page C6-12). Contamination could result from inappropriate fueling and waste discharges in violation of current laws, boat maintenance and repair facilities and activities (i.e. paint and heavy metal discharges into the public water supply) and accidents (e.g. boating and vehicles on congested roads causing fuel and lubricants to enter the water supply). The Draft EIR/EIS needs to detail appropriate safeguards that will be implemented to protect the District's water supplies from accidental spills and contamination from on-island marinas, as well as a notification procedure to CCWD with appropriate emergency cleanup mitigation should an accident occur. Details regarding sanitary disposal and pumpout facilities and how use of these facilities will be enforced need to be included. The Delta Protection Commission Resource Management Plan guidelines for marinas should be strictly adhered to.

C9-30

2. The Delta Wetlands Project Draft EIR/EIS needs to address the cumulative effects of DWR's proposed Interim South Delta Plan and a fully mitigated Delta Wetlands Project on the District's water quality and water supply.

C9-31

3. The effect of wind mixing in the water stored on Delta islands will lead to serious water quality problems if not addressed. Wind generated waves will lead to increased turbidity and can lead to serious water quality degradation when chemicals in the soil are suspended or enabled to migrate into the water column because of mixing. The water quality problems of this sort have been ignored in the Draft EIR/EIS and could lead to serious problems for biological resources in Delta channels as well as municipal and industrial uses of Delta water. The project proponents must address this potential impact.

4. The analysis of fisheries impacts in the Draft EIR/EIS includes an evaluation of the effects of variations in QWEST caused by DW diversions (page 3F-19). The Draft EIR/EIS notes that QWEST criteria are not included in the 1995 WQCP. The District believes that there is no scientific basis for the use of QWEST as a regulatory parameter or as an indicator of fisheries habitat conditions in the Bay-Delta. In particular, survival of coded-wire tagged fish released at Ryde on the Sacramento River below the Delta cross-channel by the USFWS shows no scientifically valid correlation with QWEST.

C9-33

# V. DEFICIENCIES IN THE ANALYSIS AND SCOPE OF THE DRAFT EIR/EIS

The Draft EIR/EIS fails to identify and discuss significant environmental effects of the proposed project. A Draft EIR/EIS must identify and focus on the possible significant environmental impacts of a proposed project. (Pub. Res. Code § 21000(a); Title 14, Cal. Code Regs. ("Guidelines") § 15126.) The analysis should clearly identify both direct and indirect impacts, as they occur both in the short-term and the long-term. "While foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can." (Guidelines § 15144.) The Draft EIR/EIS for the DW project fails to meet these requirements.

## A. <u>Unavoidable Significant Impacts</u>

An EIR must identify any significant impacts that cannot be avoided if the project is implemented, including those that can be mitigated but not reduced to a level of insignificance. (Pub. Res. Code § 21100(b); Guidelines § 15126(b)). Where the only means of avoiding such impacts would be to impose an alternative design on a proposed project, but the lead agency nevertheless decides not to require such design changes, the EIR must describe the implications of impacts involved and the agency's reasons for choosing to tolerate them rather than requiring the alternative design. (Guidelines § 15126(b); Pub. Res. Code § 21000(b)). The Draft EIR/EIS fails to meet these requirements in the following respects:

1. When surplus flows in the Delta are available, the DW Alternatives 1 and 2 propose to divert up to 9,000 cfs (18 TAF/day), with a maximum of 238,000 acre-feet, to two Delta islands. This could occur at any time of the year. The magnitude of the diversions would significantly reduce Delta outflows to San Francisco Bay during DW's diversion periods. Reductions in Delta outflow of this magnitude would lead to increased salinity in the Delta. DW diversions

could occur during the same time window as to be used by CCWD to divert surplus water to fill Los Vaqueros Reservoir. CCWD will divert available water to storage in the Los Vaqueros Reservoir whenever chloride levels are less than 50 mg/l. DW diversions could reduce or eliminate the diversion window for pumping to Los Vaqueros Reservoir by increasing chloride concentrations above 50 mg/l. <u>Figure 3C-12</u> shows increases in chlorides in the south Delta of up to 57 mg/l in some months. Delta Wetlands' significant impacts on the District's Los Vaqueros Project are not addressed. The District's prior comments and responses to project proponents have made clear that this must be addressed if the EIR/EIS is to be considered adequate.

C9-34 cont'd

2. The degradation of the quality of CCWD's water supply by the DW project will, at the proposed thresholds for mitigation measures, impair the beneficial uses to which the water is put by CCWD's customers. The degradation causes unacceptable adverse effects on municipal water supplies.

C9-35

3. Even though the water rights for the Los Vaqueros Reservoir will have a higher priority than the water rights for DW's proposed project, during some years DW diversions could reduce the amount of surplus flow available for diversion to Los Vaqueros Reservoir if DW's operations are not coordinated with the CVP, SWP, and CCWD. Real-time coordination of diversions would be difficult. The EIR/EIS does not contain an adequate discussion of how the various projects would be coordinated.

C9-36

4. DW proposes to discharge up to 6,000 cfs (12 TAF/day) from the DW islands throughout the year. The water discharged from DW islands would degrade water quality at CCWD's Rock Slough intake, Mallard Slough intake, the City of Antioch's intake, and the Delta intake for the Los Vaqueros Project (presently under construction). These impacts have not been addressed in the Draft EIR/EIS.

C9-37

(a) Some DW discharges would be high in salinity because, unlike the Los Vaqueros Reservoir, DW does not have limits on the salinity of water diverted to the islands. DW would divert to fill the islands whenever surplus water is available under DW's water rights, regardless of salinity levels. Salinity in DW reservoirs may further increase due to evaporation, especially when the water is stored for a prolonged period of time. High salinity water discharged from DW islands would increase salinity concentrations in the Delta channels and at CCWD's existing and future Delta diversion locations. This would degrade Los

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	Vaqueros Reservoir performance, degrade the quality of CCWD's water supply, cause unacceptable adverse impacts on CCWD's municipal and industrial customers and impair the beneficial uses to which the water is put.	C9-38 cont'd
(b)	The trihalomethane formation potential (THMFP) of water discharged from DW islands would be significantly higher than water in Delta channels. This would result in significant increases in THM precursors and other D/DBP in CCWD diversions when DW is discharging. This would increase water treatment costs for CCWD and could make it difficult to meet future D/DBP regulations, and may even cause exceedance of limits at times. It would cause unacceptable adverse impacts on municipal water supplies, especially those of CCWD and its customers. The impacts on CCWD have not been analyzed.	C9-39
(c)	Algae levels in DW discharges would be greater than levels in Delta channels and could result in increased water treatment costs for CCWD and potential taste and odor problems. If chlorine is used to control algae, then THMs could increase. This would impair the beneficial uses of CCWD's water supply and cause unacceptable adverse effects on municipal supplies, especially on CCWD and its customers.	C9-40
(d)	DW discharges could include pollutants from pesticides, herbicides, or other agricultural residues from intensive agricultural uses over the last 40-60 years. Waste disposal sites on the islands could also contribute to pollutants in the DW discharges. DW discharges could contribute to pollutants in CCWD diversions which could increase treatment costs and impact compliance with drinking water standards. These are unacceptable impacts on municipal water supplies.	C9-41
(e)	The microbiological counts would be higher in the DW discharge than in the Delta channels due to waterfowl and other wildlife.	C9-42
(f)	Proposed discharge pump stations on Holland Tract and Bacon Island are located where they may have significant effects of CCWD's Rock Slough intake and the new intake on Old River near Highway 4 due to their proximity.	C9-43
(g)	Relatively high rates of diversions from and discharges to the Delta channels could increase turbidities at CCWD's intakes. This could	C9-44

	٠	increase treatment costs and impair the beneficial uses of CCWD's water supply.	C9-44 cont'd
	(h)	The effect of wind mixing in the water stored on Delta islands will lead to serious water quality problems if not addressed. As discussed in section IV.C.3 above, wind generated mixing could lead to serious problems for biological resources in Delta channels as well as municipal and industrial uses of Delta water. The project proponents must address this potential impact.	C9-45
5.		er salinity in the San Joaquin River caused by the DW project may cause ases in industrial diversions from Contra Costa Canal.	C9-46
6.	requi:	er salinity in the San Joaquin River caused by the DW project may re CCWD to reduce pumping at its Mallard Slough intake, which has a r water right. It may also cause the City of Antioch to reduce diversions its water rights. These impacts have substantial cost implications.	C9-47
7.		ary waste disposal facilities on the four islands need to be designed and ted to high standards.	C9-48
8.	be ca const and c	and construction methods used for strengthening island levees need to refully evaluated to ensure that levee failures do not occur during or after ruction. Levee failure could have significant adverse impacts on CCWD operations of the Los Vaqueros Project. Construction methods should be that turbidities in water diverted by CCWD are not increased.	C9-49
9.		ssessment of the environmental impact of the use of Delta Wetlands ect water yield has been provided.	C9-50

# B. <u>Long-term risks to health and safety.</u>

A joint EIR/EIS must describe the long-term effects of the proposed project, giving special attention to impacts which pose long-term risks to health or safety. The reasons that the proposed project is believed by the sponsor to be justified for immediate implementation should be explained. (Guidelines § 15126(e)).

The Draft EIR/EIS does not adequately discuss the long-term health effects of increased THMFP in drinking water supplies. Nor does it explain the reasons why

immediate implementation of the project is justified in light of such health risks. How a 20  $\mu$ g/l increase in TTHM relative to the anticipated future standard of 40  $\mu$ g/l could be considered acceptable needs to be fully explained.

C9-51 cont'd

## C. <u>Significant cumulative impacts</u>.

An EIR must identify and discuss significant cumulative impacts. (Guidelines § 15130(a). Cumulative impacts are those that are "individually limited but cumulatively considerable." (Pub. Res. Code § 21083(b)). The cumulative impact analysis must contain three elements. First, it must identify related projects through the use of either a project list or a projection approach. (Guidelines § 15130(b)(1)). Second, it must contain a summary of the expected environmental effects to be produced by related projects. (Guidelines § 15130(b)(2)). Finally, it must contain a reasonable analysis of the cumulative impacts of the related projects and an examination of reasonable options for mitigation measures for a proposed project. (Guidelines § 15130(b)(3)).

The Draft EIR/EIS does not adequately discuss the cumulative impacts of the proposed project in combination with other reasonably foreseeable projects in the Delta, particularly the Los Vaqueros Project. An expanded analysis of how the proposed project would be coordinated operationally with the Los Vaqueros Project is required, as well as an analysis of the environmental impacts of such operations. Salinity increases at the District's intakes should be examined in conjunction with impacts from other proposed projects (e.g. the South Delta Water Management Plan) which may also cause elevated salinity in parts of the Delta.

C9-52

# D. Significant economic and social effects.

While economic and social effects are not considered environmental effects under CEQA, an EIR must identify and discuss economic and social effects when such effects will ultimately result in physical changes. (Guidelines § 15131(a)). The intermediate economic or social changes need not be analyzed in any greater detail than necessary to trace the chain of cause and effect.

The EIR/EIS fails to adequately consider the effects on Delta communities of removing the DW islands from agricultural production.

# E. The EIR/EIS fails to adopt legally adequate mitigation measures.

An EIR must identify mitigation measures that could minimize each significant environmental effect. (Guidelines § 15126(c)). Where several mitigation measures are available, each should be discussed and the basis for selection of a particular measure identified. (Id.).

The Draft EIR/EIS fails to identify mitigation measures adequate to minimize the significant impacts of the project on Delta water quality, as discussed above. The Draft EIR/EIS should contain a <u>detailed</u> mitigation plan to ensure that the operations and discharges from DW Project islands do not significantly affect concentrations of organics and potential contaminants in ambient Delta channels or at the Delta intakes and export pumps, and that the operations and discharges from the DW project do not impair beneficial uses of the water, injure lawful users of water, or cause unacceptable adverse impacts on municipal water supplies or other beneficial uses.

C9-54

# F. The Draft EIR/EIS fails to describe and analyze a sufficient range of alternatives to the proposed project and to proposed project operations.

One of an EIR's major functions is to ensure that public agencies thoroughly assess all reasonable alternatives to proposed projects. (Laurel Heights Improvement Ass'n v. Regents of University of California (1988) 47 Cal.3d 376, 400). Consequently, an EIR must describe a range of reasonable alternatives to the project or project location, and must evaluate the comparative merits of the alternatives. (Guidelines § 15126(d)). The discussion of alternatives must focus on alternatives capable of eliminating significant environmental impacts, or reducing them to a less-than-significant level, even if the alternatives are more costly or would impede attainment of project objectives. (Guidelines § 15126(d)(3)). If an EIR concludes that no feasible alternatives to a proposed project exist, the EIR must also discuss the rejected alternatives and the reasons for their rejection in sufficient detail to allow meaningful public review. (Laurel Heights, 47 Cal.3d at 403-406). Reasonable alternatives to the project location, as well as to the project, must also be discussed. (Guidelines § 15126(d); Laurel Heights, 47 Cal.3d at 403).

The purpose of the DW Project, as modeled in the Draft EIR/EIS, is to capture surplus flows for release for export to SWP and CVP facilities. Conventional offstream storage reservoirs could achieve this purpose more efficiently. Compared to conventional offstream storage projects, the DW Project has high evaporation losses due in part to the relatively shallow reservoirs with large surface areas.

The Delta Wetlands Project Draft EIR/EIS ignores alternatives that are reasonable that divert water at rates dependent upon water availability, and schedule diversions and releases that would reduce or eliminate impacts. These alternatives and their respective environmental impacts must be examined, particularly since no willing buyers have been identified and the operations studies assume that all of the water intended to be sold would be exported at the State and Federal projects.

C9-55 cont'd

In summary, the Draft EIR/EIS is deficient in numerous respects. The Draft EIR/EIS is legally required to contain a <u>detailed</u> mitigation plan to ensure that the project does not significantly affect Delta water quality; that it does not impair the beneficial uses to which the water is put; that it does not adversely affect the users of the water supplied by CCWD; that it does not cause unacceptable adverse impacts on municipal and industrial water supplies; that it does not conflict with the operations of the Los Vaqueros Project; and that it would not harm endangered and threatened species. Because of these significant impacts and the lack of sufficient information regarding the mitigated project operations, a new or supplemental Draft EIR/EIS may need to be prepared and circulated for additional review and comment.

#### **Contra Costa Water District**

## **C9-1.** This comment summarizes several concerns:

- # effects on beneficial uses of CCWD water;
- # increased salinity at CCWD intakes;
- # elevated levels of DOC, algae, salts, and possibly other contaminants in Delta Wetlands discharges; and
- # the impairment of Los Vaqueros Project operations.

These concerns are addressed in responses to specific comments that follow.

Because of continuing disagreement among experts expressed in comments on the 1995 DEIR/EIS and at the 1997 water right hearing, some elements of the evaluation of Delta Wetlands Project impacts on water quality were addressed again in the 2000 REIR/EIS. The evaluation considered the effects of project operations as constrained by the FOC and biological opinion RPMs. The 2000 REIR/EIS incorporated the following:

- # the most recent DWR data on Delta water quality constituents,
- # DOC loading estimates derived from testimony and DWR's SMARTS experiments, and
- # updated information on the assumed relationship between constituents in raw water and municipal water treatment plant operations.

See Master Response 7, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts", for information about the analysis of DOC and THMs.

Incorporating the FOC into the proposed project reduced most project effects on salinity to a less-than-significant level. Like the 1995 DEIR/EIS impact analysis, however, the analysis in the 2000 REIR/EIS found that project operations could sometimes result in significant impacts on salinity and concentrations of DOC and THMs. Therefore, the mitigation that was recommended in the 1995 DEIR/EIS was recommended again in the 2000 REIR/EIS: monitoring water quality parameters in Delta channels, on the Delta Wetlands Project islands, and at the export locations, and adjusting project diversions or discharges as needed to prevent significant changes in the measured parameters attributable to project operations.

For example, implementing Mitigation Measure C-4 would involve restricting project diversions or discharges to limit concentrations of chloride in Delta exports, including CCWD Delta diversions. This measure recommends obtaining daily measurements of

chloride concentrations from CCWD's Rock Slough and Old River intakes and calculating the change in concentration attributable to scheduled Delta Wetlands diversions. It also recommends measuring the chloride concentration in water stored on the project islands to calculate the concentration that could be expected in Delta exports if Delta Wetlands discharged water at its maximum rate. Discharges would be limited if necessary to avoid a violation of the significance criteria.

If excessive leaching of DOC or buildup of other contaminants were to occur, implementing Mitigation Measure C-5 would involve reducing the discharges to allow sufficient dilution in the Delta channels. Chapter 4 of the 2000 REIR/EIS, in the section entitled "Example of Discharge of Delta Wetlands Storage Water with High Dissolved Organic Carbon Concentrations under Mitigation Recommended in the 1995 Draft EIR/EIS", provided an example of the way in which such mitigation would be applied (see Chapter 3C in Volume 1 of this FEIS).

In October 2000, Delta Wetlands and CCWD submitted a water right protest dismissal agreement to the SWRCB that addresses CCWD's remaining concerns about potential project effects on the quality of water available for diversion by CCWD and Los Vaqueros Project operations. The agreement includes several restrictions on Delta Wetlands Project diversions to limit project effects on the location of X2. It also includes the WQMP negotiated by Delta Wetlands and CUWA, which describes the measures that Delta Wetlands has agreed to implement to limit potential project effects on drinking water quality and treatment plant operations. By agreeing to implement the WQMP, Delta Wetlands has agreed to implement a comprehensive monitoring plan and restrict discharges, when necessary, to limit project effects on DOC, THMs, and other water quality variables. The protest dismissal agreement, including the WQMP, is included in the Appendix to the Responses to Comments.

## **C9-2.** This comment summarizes the following concerns:

- # use of one representative export location in the water quality impact analysis,
- # effects on THM and TOC concentrations and assessment of impacts with respect to future THM standards.
- # significance levels for the analysis of water quality effects, and
- # adequacy of the analysis of project effects on water quality.

These concerns are addressed in responses to specific comments that follow. See Master Response 9, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts", for information about the analysis of DOC and THMs; see response to Comment C9-1 regarding the protest dismissal agreement that has resolved CCWD's concerns about project impacts on salinity, DOC, and THMs.

- **C9-3.** The 2000 REIR/EIS evaluated project operations under the FOC and other requirements adopted during the ESA consultation process to mitigate project effects on biological resources. These "mitigated operations" were reported and evaluated in the 2000 REIR/EIS.
- **C9-4.** The concern summarized in this comment—adequacy of identified mitigation—is addressed in responses to specific comments that follow. See also responses to Comments C9-1 and C9-17 regarding the protest dismissal agreement that has resolved CCWD's concerns about project impacts on salinity, DOC, and THMs.
- **C9-5.** See Master Response 3, "Areas of End Use and Potential Growth-Inducement Effects of Delta Wetlands Water Deliveries".
- **C9-6.** Since this comment letter was submitted, the lead agencies have concluded formal ESA consultation with DFG, NMFS, and USFWS for project effects on listed fish species and their habitats. Biological resources that could be affected by Delta Wetlands Project operations will be protected by the mitigation measures described in the 1995 DEIR/EIS; they will also be protected by the FOC and RPMs that were developed through the consultation process and described in the no-jeopardy biological opinions issued by DFG, NMFS, and USFWS. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".
- C9-7. Since this comment was written, the lead agencies have issued a 2000 REIR/EIS for additional review and comment. The 2000 REIR/EIS addressed project impacts on water quality and biological resources in response to this and other comments received on the 1995 DEIR/EIS. The mitigation measures presented in the NEPA and CEQA analysis are of sufficient detail to, at a minimum, describe to reviewers the steps necessary to reduce the impact to a less-than-significant level. Additional detail about mitigation and monitoring of listed fish species was developed as part of the ESA consultation process and was included in the 2000 REIR/EIS.
- **C9-8.** Chapter 3E assesses the potential effects of Delta Wetlands' project operations on the structural integrity and maintenance requirements of transportation and utility infrastructure. Figure 3E-1 depicts the transportation and water conveyance infrastructure in the project vicinity that is assessed in this chapter. The figure was not intended to show all water conveyance and transportation infrastructure in the project region. No changes need to be made to the figure.
- **C9-9.** Responses to Comments C9-10 through C9-19 address the specific comments in this letter on methodology and technical content of the analysis of Delta Wetlands Project effects on water quality and water supply. Since this comment was written, the lead agencies have issued a 2000 REIR/EIS for additional review and comment.

- C9-10. Whereas CCWD facilities are operated as a unit of the CVP (under USBR water rights), Delta Wetlands is completely independent and would operate under junior water rights. The Delta Wetlands Project therefore was not analyzed as being integrated with the SWP and the CVP. Operations of upstream reservoirs would not change in response to independent Delta Wetlands operations. See Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program", regarding this issue.
- **C9-11.** The commenter is correct that SWP and CVP exports were adjusted for the simulations of Delta Wetlands Project operations using the DeltaSOS model that are described in the 1995 DEIR/EIS. The DWRSIM estimates of SWP and CVP exports were increased to the 1995 WQCP limits without consideration of south-of-Delta demands. This method was used to show the maximum likely environmental effects from the maximum project operations that would be physically possible; the purpose of the adjustment is to fully disclose possible water quality impacts.

Additionally, for purposes of impact assessment, a "worst-case" scenario was assumed in the 1995 DEIR/EIS in which all water discharged from the project reservoir islands would be exported through the SWP and CVP; such a level of exports would have the greatest detrimental effect on water supply, hydrodynamics, water quality, and fishery resources. For some years of the DeltaSOS simulations described in the 1995 DEIR/EIS, the simulated exports and Delta Wetlands Project operations are likely to be higher and outflow is likely to be lower than they would be under actual project operations because the demand for Delta Wetlands Project water could have been overestimated.

In response to this and other comments received on the 1995 DEIR/EIS, the lead agencies directed that the analysis of project effects for the 2000 REIR/EIS include a scenario in which Delta Wetlands discharges are exported only to satisfy the delivery deficits that the DWRSIM monthly planning model simulated to exist for each year (see Table 3-10 in the 2000 REIR/EIS [Tables 3A-29 in FEIS Volume 1]). As described in Chapter 3 of the REIR/EIS, this reduced the Delta Wetlands discharges to export in a few unusually wet years and lowered the average annual project water supply potential from 139 TAF/yr to 115 TAF/yr (Tables 3-15 and 3-18 of the 2000 REIR/EIS [Tables 3A-34 and 3A-37 in FEIS Volume 1]).

C9-12. The commenter observes that export water quality differs between CCWD's Rock Slough intake and the SWP and CVP export locations. Salinity and DOC patterns in south-Delta channels are complex and cannot be precisely simulated. The purpose of the monthly modeling using DeltaSOQ is to determine when there would be differences between no-project and with-project conditions and to estimate the relative magnitude of those differences. Estimates of export water quality used in the 1995 DEIR/EIS were based on CCWD measurements of Rock Slough chloride concentrations and EC because the Rock Slough intake has the highest average salinity of the three locations. The analysis therefore probably overstates the average salinity levels at the SWP and CVP export locations by using Rock Slough to represent conditions at all export locations.

The 2000 REIR/EIS recognized the differences in water quality in south Delta channels. The differences at different intakes are illustrated in Figures 4-1, 4-4, 4-5, 4-7, and 4-9 in the 2000 REIR/EIS (Figures 3C-26, 3C-29, 3C-30, 3C-32, and 3C-34, respectively, in Chapter 3C of Volume 1 of this FEIS). Although these differences in water quality are recognized, the DeltaSOQ model uses a representative Delta export location to evaluate whether the project would adversely affect Delta export water quality. Tidal mixing in south Delta channels strongly influences water quality at south Delta intakes. Therefore, the timing and relative magnitude of effects of project diversions and discharges at each location in the south Delta would be similar. This is illustrated by K. T. Shum's 1997 water right hearing testimony presented in CUWA Exhibit 8, as described below.

As documented in CUWA Exhibit 8, K. T. Shum used the Fischer Delta Model (FDM) to predict the difference between baseline (no-project) and with-project water quality at individual south Delta intake locations during project discharges. Shum selected August 1928 conditions for the simulation, and reported that "the combination of Delta inflows, exports, and Delta Wetlands releases used in this study were chosen to determine a probable 'worst case scenario'". (CUWA Exhibit 8.)

The results of the FDM simulation indicate that the timing of impacts on each intake facility differs slightly: changes in concentration are detected approximately 2–3 days later at the Rock Slough intake than at the Old River, Clifton Court, and Tracy intakes. However, the changes in water quality between the no-project and with-project conditions, reported as a percentage of the difference between the baseline (no-project) concentration and the stored water concentration, were similar: 20%–25% at the Tracy, Clifton Court, and Old River intakes and less than 20% at the Rock Slough intake.

Under the inflow, export, and Project discharge conditions of this example, the monthly simulation used in the REIR/S also predicts that Delta Wetlands Project discharges would result in an approximate change of 25% at south Delta intakes. These results indicate that although there are differences in water quality at the various intake locations, the timing and relative changes in water quality resulting from the Delta Wetlands Project are well represented by the monthly modeling results.

As noted above, the purpose of the analysis is not to precisely predict water quality concentrations in the Delta; the purpose is to predict *differences* in water quality between the No-Project Alternative and proposed project alternatives. The simulations that use a representative export location meet this purpose.

Table 1 from CUWA Exhibit 8 shows that total south Delta diversions would be approximately 12,280 cfs (where CVP and SWP = 10,769 cfs, CCWD = 338 cfs, and Delta depletion in the south Delta = 1,172 cfs [assuming that 40% of total Delta depletion would occur in the south Delta]), and Delta Wetlands Project discharges would total 3,146 cfs. The resulting contribution of monthly Delta Wetlands Project discharges to total exports would be approximately 25%.

Additionally, the Delta Wetlands Project WQMP includes a requirement that Delta Wetlands perform both hydrodynamic and particle-tracking modeling to predict baseline conditions and real-time changes attributable to project operations. Attachment 3 of the WQMP details modeling assumptions to which Delta Wetlands and CUWA have agreed; these include use of the FDM Version 10 with simulations of real tides.

C9-13. The purpose of the DeltaSOQ model is to estimate EC, chloride, and DOC as a function of Delta flows, agricultural drainage, and exports so that the differences between no-project conditions and conditions under project operations can be simulated. The 2000 REIR/EIS compared the results of the simulations with historical data to confirm the reliability of the DeltaSOQ model in predicting general trends. For the analysis in the 2000 REIR/EIS, water quality conditions were simulated for 1922–1994 (73 years) based on the results of baseline water supply and operations modeling (i.e., DWRSIM results).

Figure G-4 of the 2000 REIR/EIS compared the DeltaSOQ—calculated and measured EC values at Chipps Island, Emmaton, and Jersey Point, and Figure G-6 showed a similar comparison of chloride values. Figure G-7 compared monthly grab samples of EC from the CVP Tracy and SWP Banks pumping plants. The comparison of the historical measured data with the model results shown in Figures G-4 through G-9 indicates that the model generally reproduces the observed patterns in Delta water quality for EC, chloride, and DOC at the locations of interest with established water quality objectives.

Several elements cause differences between measured historical data and simulation results. There is some variation between the simulated and measured (historical) water quality values because the model simulations used mean monthly flows and exports rather than actual daily flows, which are reflected in the measured data. DeltaSOQ uses the DAYFLOW estimates of Delta outflow to calculate EC with the "G-model" approach developed by CCWD; it is likely that some differences are the result of estimated Delta outflows.

The simulated No-Project Alternative serves as the baseline condition with which simulated Delta Wetlands Project operations are compared for impact assessment purposes. Although DeltaSOQ cannot replicate all the complex changes in water quality that occur in the Delta, the DeltaSOQ results are generally confirmed by the historical measurements of EC and chloride.

See also response to Comment C9-12 above regarding use of the FDM during project operations.

**C9-14.** CCWD observed a time lag of approximately 14 days in salinity changes between Jersey Point and Rock Slough. The NEPA and CEQA impact analysis was based on monthly average values, however. Although the 14-day lag is not simulated, the magnitude of the salinity changes is represented accurately for the monthly average conditions used in the impact assessment of water quality effects. See also responses to Comments C9-12 and C9-13.

- **C9-15.** See Master Response 7, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts".
- **C9-16.** See Master Response 7, "Analysis of Delta Wetlands Project Effects on Disinfection Byproducts", and response to Comment B7-31.
- **C9-17.** See Master Response 6, "Significance Criteria Used for the Water Quality Impact Analysis", for a discussion of the significance criteria used in the 1995 DEIR/EIS and the 2000 REIR/EIS.

The FOC terms provide substantial protection for salinity at Chipps Island, Jersey Point, and Emmaton by requiring that X2 position be at or downstream of Chipps Island before Delta Wetlands begins diversions to storage. Chapter 4 of the 2000 REIR/EIS (see FEIS Volume 1, Chapter 3C) evaluated the effects that project operations under the FOC would have on salinity. Based on this evaluation, salinity at Chipps Island and in Delta exports was considered less than significant; salinity at Emmaton and Jersey Point was still considered significant and mitigation was recommended.

The Delta Wetlands Project WQMP provides for additional monitoring, modeling, and operational controls by Delta Wetlands to further reduce effects on salinity and DOC concentrations. The WQMP includes screening criteria intended to minimize salinity impacts associated with project discharges. Delta Wetlands would be required to modify project operations when they cause one of the following conditions, calculated as a 14-day average or the average for the duration of the discharge (whichever time period is shorter):

- # an increase in salinity of more than 10 mg/l chloride at one or more of the urban intakes; or
- # a salinity increase at the urban intakes in the Delta that exceeds 90% of an adopted salinity standard.

The WQMP also requires that Delta Wetlands implement additional mitigation of long-term water quality impacts if project operations cause a net increase in TDS, bromide, and chloride in water diverted from the Delta for urban uses, averaged over 3 years, that is greater than 5%.

Additional project restrictions were included in the protest dismissal agreement between Delta Wetlands and CCWD. These restrictions further reduce potential project effects on salinity and include restrictions on Delta Wetlands diversions as a function of X2 location. These restrictions are summarized in the following table. Refer to the Appendix to the Responses to Comments for the full text of the protest dismissal agreement.

## Summary of Delta Wetlands and Contra Costa Water District Protest Dismissal Agreement Terms

- 3a. Project diversions shall not exceed 1,000 cfs when the 14-day running average X2 is greater than 80 km, nor exceed 500 cfs if the 14-day running average X2 exceeds 81 km.
- 3b. Project diversions shall not exceed 25% of net Delta outflow year-round or 15% of net Delta outflow in January, February, and March.
  - No project diversions shall be made in April and May.
  - Project diversions shall not shift the location of X2 by more than 2.5 km during the October-through-March period.
- 3c. The Delta Wetlands Project shall not cause an increase in chloride concentration at any of CCWD's intakes of more than 10 mg/l at any time.
- 3d. Project diversions cannot begin until X2 has been west of Chipps Island for a period of 10 consecutive days for the current water year.
- 4. Project diversions shall not cause the location of the 14-day running average of X2 to shift upstream such that X2 is:
  - # east of Chipps Island (i.e., >75 km) during February through May;
  - # east of Collinsville (i.e., >81 km) during January, July, and August; or
  - # east of Collinsville (i.e., >81 km) during December, and delta smelt are present at CCWD's point of diversion.
- **C9-18.** See response to Comment C9-3.
- **C9-19.** See Master Response 3, "Areas of End Use and Potential Growth-Inducement Effects of Delta Wetlands Water Deliveries".
- **C9-20.** See responses to Comments C9-3 and C9-7.
- C9-21. Several of the mitigation measures proposed by the commenter have been incorporated into the FOC. The FOC include outflow criteria that would reduce Delta Wetlands effects on X2, EC, and chloride concentrations; see response to Comment C9-17. Incorporating the FOC into the proposed project eliminated the simulated diversions for October 1978 shown in the 1995 DEIR/EIS assessment (referred to in the comment); see Table 3-13 of the 2000 REIR/EIS (Table 3A-32 in Chapter 3A of FEIS Volume 1). The commenter's suggested outflow of 20,000 cfs would provide a very large measure of protection; this outflow would correspond to a chloride concentration of approximately 1 mg/l from seawater intrusion at the CCWD intake. Delta outflow requirements somewhat less than the suggested 20,000 cfs have been incorporated into the FOC. See response to Comment C9-22.

Possible interference with Los Vaqueros Project operations has been eliminated by adoption of the protest dismissal agreement between CCWD and Delta Wetlands. See responses to Comments C9-17 and C9-22.

- **C9-22.** The FOC terms developed through the ESA consultation process and incorporated into the proposed project prohibit Delta Wetlands from diverting water during April and May and include several restrictions on diversions in March. These include restrictions based on:
  - # X2 location,
  - # change in X2,
  - # total surplus flow,
  - # total outflow, and
  - # presence of delta smelt.

As indicated by the commenter, the location of X2 can constrain CCWD's Los Vaqueros Project operations in some months. These FOC measures reduce Delta Wetlands' effects on X2 location.

Term 4 of the protest dismissal agreement that Delta Wetlands and CCWD submitted to the SWRCB in October 2000 includes additional restrictions on Delta Wetlands diversions to ensure that Delta Wetlands will not interfere with CCWD's ability to meet the terms of the Los Vaqueros Project biological opinions. Under the agreement, Delta Wetlands is prohibited from diverting water when CCWD's diversions to Los Vaqueros Reservoir are restricted or prohibited because of the position of X2. See the copy of the agreement in the Appendix to the Responses to Comments for details.

Implementing these measures will ensure that Delta Wetlands Project operations do not affect X2 when CCWD must restrict operations to protect fisheries. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for a description of the FOC terms.

- **C9-23.** See responses to Comments C6-7 and C9-22.
- **C9-24.** See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".
- **C9-25.** See Master Response 7, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts", for information about the analysis of DOC and THMs.
- **C9-26.** The impact assessment for project effects on chloride includes the possibility that the salinity of water stored on the project reservoir islands could be greater than channel salinity. See responses to Comments C9-17 and C9-21.

- **C9-27.** See response to Comment B5-11 regarding the potential for scour at Delta Wetlands discharge facilities. The Bacon Island discharge location has been changed since the 1995 DEIR/EIS was published. See Chapter 2 of FEIS Volume 1 and response to Comment R10-37.
- **C9-28.** The 1995 DEIR/EIS analyzes a reasonable range of alternatives that would meet the project purpose and analyzes the No-Project Alternative as required by NEPA and CEQA. The alternative proposed by the commenter would not meet the project purpose and therefore would not be considered in the reasonable range of alternatives.
- The commenter suggests that the CEQA and NEPA document analyze an alternative that includes a direct connection between the Delta Wetlands reservoir islands and the export locations. A direct connection between the Delta Wetlands reservoir islands and the export locations would only be relevant if Delta Wetlands operations were integrated into the SWP and CVP operations. Although Delta Wetlands Project operations could be integrated with operation of SWP and CVP export facilities, no proposals for such integration have been made for which the lead agencies could reasonably assess the environmental effects. For impact assessment purposes, all Delta Wetlands Project discharges are assumed to be exported; however, project discharges could also be used for environmental purposes (i.e., to augment outflow), as stated in the project purpose. Therefore, the project has been analyzed only as a stand-alone facility operated independently of the SWP and CVP, and analysis of the alternative suggested by the commenter would be unreasonably speculative regarding the future operations of the SWP and CVP. Additionally, the Section 404(b)(1) Alternatives Analysis for the Delta Wetlands Project discusses the use of other Delta islands for reservoir storage; see Appendix 4 of the 1995 DEIR/EIS.
- **C9-30.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities", and response to Comment B5-9.
- **C9-31.** The scenario for the cumulative impact analysis described in Chapter 3C of the 1995 DEIR/EIS and Chapter 3 of the 2000 REIR/EIS included the proposed DWR South Delta Program. Refer to Chapter 3A and 3C of FEIS Volume 1. See also response to Comment B7-3.
- C9-32. Chapter 3C (page 3C-30) of the 1995 DEIR/EIS described water quality issues related to wind mixing and increased turbidity (see page 3C-33 of FEIS Volume 1), and the chapter recommended a mitigation measure (Mitigation Measure C-7) to reduce the potential effects on channel water quality. The measure includes daily monitoring and monthly reporting of turbidity and potential contaminants and limiting discharges as necessary to limit effects of discharges on channel water quality. The FOC terms include similar requirements for temperature and DO. If high winds caused significant mixing of stored water and unacceptable turbidity or suspension of contaminants, Delta Wetlands would be required to reduce or suspend discharges until settling reduced the concentrations to acceptable levels.

- **C9-33.** An evaluation of QWEST was included in the 1995 DEIR/EIS and in the biological assessment to meet information needs expressed by NMFS, DFG, and others. QWEST is an indicator of fish habitat conditions (e.g., an index of the volume of Sacramento River flow entering the central Delta through the lower San Joaquin River and distributary channels). As noted by the commenter, the biological significance of QWEST is not clearly supported by available information. The DFG biological opinion, however, does include an RPM limiting project diversions in March based on QWEST.
- **C9-34.** The FOC terms limit potential project effects on X2 and outflow and, therefore, on CCWD chloride concentrations. Incorporating the FOC into the proposed project eliminates the effect referred to in the comment (an increase of 57 mg/l in chloride concentration). See responses to Comment C9-17 and C9-22.
- **C9-35.** See response to Comment C9-1.
- **C9-36.** Real-time coordination would probably occur through the CALFED Ops Group; see response to Comment B6-49. The WQMP also includes details of real-time monitoring and coordination that Delta Wetlands has agreed to implement.
- C9-37. The potential effects of Delta Wetlands discharges on salinity in the Delta and at Delta export locations were described in Chapter 3C of the 1995 DEIR/EIS and Chapter 4 of the 2000 REIR/EIS (see Chapter 3C in Volume 1 of this FEIS). Because all water released from the project islands is assumed to be exported, the analysis did not report changes in salinity at Mallard Slough (represented in the analysis by the Chipps Island location) and the City of Antioch intake (represented by the Chipps Island and Jersey Point locations) as a result of Delta Wetlands discharges. Changes in salinity at CCWD's Rock Slough intake and the Los Vaqueros Old River intake resulting from project discharges were described in Appendix B2 and Chapter 3C of the 1995 DEIR/EIS. See responses to Comments C9-1, C9-17, and C9-22. Additional protection is provided by the FOC and WQMP measures that limit Delta Wetlands diversions when salinity is high, and thereby limit the salinity of water that would be stored on the reservoir islands and subsequently discharged. See responses to Comments C9-17 and C9-22 above.
- **C9-38.** See responses to Comments C9-17 and C9-22 regarding restrictions on Delta Wetlands operations to minimize salinity impacts.
- **C9-39.** The evaluation of project effects on DBPs was updated in the 2000 REIR/EIS. See Master Response 9, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts", for more information.
- **C9-40.** Mitigation Measure C7 includes routine monitoring of chlorophyll. Delta Wetlands would not discharge water if algae problems existed in water stored on the reservoir islands. See response to Comment B7-50.

- C9-41. The potential for the presence of pesticide residues and waste disposal remains on the reservoir islands was addressed in Appendix C6, "Assessment of Potential Water Contaminants on the Delta Wetlands Project Islands", of the 1995 DEIR/EIS. No significant residues of agricultural chemicals were detected; however, some sites of potential contamination from past agricultural operations and waste disposal operations exist on the Delta Wetlands Project islands. Therefore, Mitigation Measure C-8 was provided in Chapter 3C to address the unlikely event of the release of pollutant residues into stored water. This measure recommends that preliminary site assessments be conducted at potential contamination sites, in addition to those already performed for the impact analysis. Site cleanup or remediation would be necessary if any pollutant sources were identified.
- **C9-42.** Avian microorganisms do not survive in water for long periods. Also, most of the increased use of the Delta Wetlands Project islands by waterfowl would take place on the habitat islands, rather than on the reservoir islands.
- **C9-43.** The large tidal excursion (water movement) and mixing in the south Delta would result in rapid blending of project discharges with channel water. Therefore, the physical proximity of the discharge pumps to intakes is not as important as the proportion of water reaching an intake that originates in Delta Wetlands Project discharges, and the relative characteristics of that water. Appendices B1 and B2 of the 1995 DEIR/EIS evaluate the changes in Delta channel flows that could result from project operations and the relative contributions of Delta Wetlands Project discharges to export concentrations of water quality variables. The impact analysis in Chapter 3C of the 1995 DEIR/EIS and of Volume 1 of this FFEIS reflects the results of these evaluations. See also responses to Comments C9-12 and C9-27 above.
- **C9-44.** Delta Wetlands Project operations would not cause large changes in turbidity in Delta channels. See response to Comment C9-27 above.
- **C9-45.** See response to Comment C9-32.
- **C9-46.** Incorporating the FOC into the proposed project substantially limited the potential effects of proposed project operations on San Joaquin River salinity. For a listing of the FOC measures that limit the effects of project operations on salinity, see "Indirect Effects of Delta Wetlands Project Diversions and Discharges on Flows, Downstream Transport, Area of Optimal Salinity Habitat, and Entrainment" in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions"; see also response to Comment C9-22 above.

The analysis of potential project impacts used the basic CCWD water demand pattern as simulated by DWRSIM. Analyzing the indirect effect of potential changes in San Joaquin River salinity on demand patterns within the CCWD service area is too speculative and is beyond the scope of the CEQA and NEPA analysis.

- **C9-47.** Delta Wetlands diversions may affect salinity at Mallard Slough and the City of Antioch intake. The 1995 DEIR/EIS and the 2000 REIR/EIS analyzed potential effects of project operations on salinity at these locations. Changes in salinity at Chipps Island reported in these documents is representative of changes at Mallard Slough. The City of Antioch intake is located between Chipps Island and Jersey Point; therefore, changes in salinity at the City of Antioch intake are bracketed by the changes reported for Chipps Island and Jersey Point. See Chapter 3C, "Water Quality", in Volume 1 of this FEIS for results of the analyses. See also response to Comment C9-37 regarding the effect of Delta Wetlands discharges on salinity at these locations.
- **C9-48.** See responses to Comments A3-3 and B5-3 regarding the design and operation of sewage disposal and treatment facilities.
- **C9-49.** The 2000 REIR/EIS included an analysis of the proposed levee design and construction; see Chapter 3D of FEIS Volume 1 and Appendix H of the 2000 REIR/EIS for more information. Because levee construction activities would occur on the interior of the project islands, no change in turbidity in Delta channels would occur. Additionally, for construction activities associated with installing siphon and pump facilities and recreation boat docks in channels, Delta Wetlands would be required to obtain water quality certification or a waiver of certification from the SWRCB (pursuant to Section 401 of the Clean Water Act) before construction; this certification would include guidelines for standard construction practices to minimize effects of construction on water quality.
- **C9-50.** The Delta Wetlands Project is analyzed as a stand-alone water storage facility, operated independently of the SWP and CVP, without regard to specific entities to which the water would be sold. The environmental effects that would result when purchasers use water provided from the Delta Wetlands Project are defined as "growth-inducing" effects. See response to Comment B6-2.
- **C9-51.** See Master Response 7, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts".
- **C9-52.** The direct and indirect impacts of the project alternatives are considered in combination with the impacts of closely related past, present, or reasonably foreseeable, probable future projects. A list of related projects considered as part of the framework for analyzing cumulative impacts is included in Appendix 2 of the 1995 DEIR/EIS. These projects were given reasonable consideration for their contribution to the cumulative conditions in the Delta.

A quantitative assessment of cumulative water quality impacts was performed using DeltaSOS simulations of the Delta Wetlands Project under the assumption that SWP pumping would be permitted at full capacity of Banks Pumping Plant (see Chapter 3A of Volume 1 of this FEIS). The methodology for evaluating cumulative impacts quantitatively was based on the following scenario:

- # increased upstream demands;
- # increased demands south of the Delta;
- # an increased permitted pumping rate at Banks Pumping Plant;
- # implementation of the South Delta and North Delta Programs;
- # additional storage south of the Delta in Kern Water Bank;
- # operation of the Los Banos Grandes Reservoir, MWD's Diamond Valley Reservoir, and the Arvin-Edison projects; and
- # operation of CCWD's Los Vaqueros Reservoir.

This list was used to develop a quantitative scenario that represents reasonably foreseeable future Delta conditions and regulatory standards.

As required by CEQA, the analysis evaluated the project's contribution to cumulative water quality conditions (State CEQA Guidelines Section 15130). Based on the water quality analyses in the 1995 DEIR/EIS and 2000 REIR/EIS, implementation of the Delta Wetlands Project under cumulative conditions would contribute to significant adverse effects on salinity (EC), DOC, THM, and other water quality variables and would require the implementation of mitigation measures. See Chapter 3C of the 1995 DEIR/EIS and Table 3C-32 in Chapter 3C of FEIS Volume 1 for more information about the significance conclusions for cumulative impacts.

Since the 2000 REIR/EIS was published, CALFED released its Final Programmatic EIS/EIR. The impact analysis in the CALFED document also concluded that the Delta Wetlands Project would contribute adversely to cumulative water quality conditions. The CALFED program's contributions to cumulative water quality impacts are expected to be avoided, reduced, or mitigated to a "less than cumulatively considerable" level, with the exception of localized increases in EC in water in the central Delta. Such increases are considered a significant unavoidable cumulative impact. (CALFED Bay-Delta Program 2000.)

A good faith effort was made to analyze the Delta Wetlands Project under cumulative conditions based on review of foreseeable projects in the Bay-Delta and a qualitative evaluation of the project's contribution to future cumulative conditions. This method is sufficient for compliance with CEQA and NEPA. Modifications to the cumulative impact assessment requested by the commenter would not change the impact conclusions. Therefore, cumulative impacts on water quality remain significant and require mitigation as reported in the environmental document.

See also response to Comment R2-6 regarding cumulative contributions of DOC from wastewater projects.

See response to Comment B6-49 regarding coordination of Delta Wetlands Project operations with Los Vaqueros Reservoir operations; such coordination would probably occur through the CALFED Ops Group.

C9-53. As discussed in Chapter 3K, "Economic Conditions and Effects", Alternatives 1, 2, and 3 would result in the loss of agricultural jobs on the Delta Wetlands Project islands. The loss of these jobs would lead to the loss of additional jobs in industries that supply goods and services to farming operations on the Delta Wetlands Project islands. Although the estimated 280 agriculture-related jobs that would be lost under Alternative 1 would be a large number of jobs, the jobs would be spread over a wide area and several communities. The loss of these jobs would affect agricultural workers who reside on the Delta Wetlands Project islands and workers who commute from nearby communities or work in the area temporarily. The secondary employment losses would be spread over several communities that include businesses dependent on agriculture. Large communities such as Lodi and Stockton and smaller communities such as Rio Vista and Brentwood could be affected.

Under Alternative 1, the estimated 280 agriculture-related jobs lost because of the project would be more than offset by the estimated 406 jobs generated within the region by the expenditures of project-related recreationists and the operation and maintenance of water storage and recreation facilities. Many of these jobs would probably be located in communities that would experience losses of agriculture-related jobs. Jobs would shift among businesses and industries within affected communities, potentially resulting in the closure of a few existing businesses and the opening of new businesses; however, the net effect on employment and income within these communities should be positive. No substantial adverse short- or long-term economic effects should be felt by communities located near the Delta Wetlands Project islands. The analysis presented in the 1995 DEIR/EIS is detailed enough to confirm that the project would not cause community-level effects that would ultimately result in adverse physical changes within communities.

- **C9-54.** See response to Comment C9-1 regarding mitigation measures and additional detail provided in the WQMP.
- **C9-55.** The 1995 EIR/EIS and 2000 REIR/EIS analyzed a reasonable range of alternatives that would meet the project purpose and also analyzed the No-Project Alternative as required by NEPA and CEQA. As described in Chapter 2 under "Alternatives Considered but Not Selected for Detailed Evaluation", the lead agencies considered non-Delta water storage or conjunctive use as a potential alternative. However, this alternative was eliminated from further evaluation because it would not meet the project purpose. See also the Section 404(b)(1) Alternatives Analysis presented in Appendix 4 of the 1995 DEIR/EIS.
- **C9-56.** See response to Comment C9-7 above.



### COUNTY OF SAN JOAQUIN

DEPARTMENT OF PUBLIC WORKS
P. O. BOX 1810 – 1810 E. HAZELTON AVENUE

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December 20, 1995

Mr. Jim Sutton State Water Resources Control Board Division of Water Rights Post Office Box 2000 Sacramento, California 95812-2000

SUBJECT:

DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL

IMPACT STATEMENT — DELTA WETLANDS PROJECT

STATE CLEARINGHOUSE NO. 96 COMMENT

DUE DECEMBER 21, 1995

Dear Mr. Sutton:

San Joaquin County Department of Public Works has serious concerns regarding the Draft Environmental Impact Report/Environmental Impact Statement (EIR) for the proposed Delta Wetlands Project. Please consider the following, when preparing the final document, to insure adequate mitigation to minimize the significant environmental and infrastructure impacts to the surrounding islands, roadways and waterways within San Joaquin County:

#### I. FLOOD CONTROL/SEEPAGE

The Water Resources/Flood Control Division has serious concerns regarding the safety of the reservoir islands. The Division does not find an improvement in flood protection in the description of construction nor operational maintenance of the proposed project. Example, a levee failure on a reservoir island could have disastrous and previously unforeseen consequences. The sudden outflow of water from the 100,000 acre-feet of water stored could be vastly different from the usual Delta flood patterns of water flowing from upriver. The EIR needs to address the requisite change in flood preparedness or identify remedial measures to mitigate this added flood threat to San Joaquin County.

The problem of seepage or other non-catastrophic failure is another issue of concern. The levee maintenance procedures described in the EIR, such as "placement of fill", are basically the same as current levee maintenance practices. Current levees need only keep water out. The EIR should specifically address the particular needs of levees, which act to fully impound the entire perimeter of Delta islands. Water, wind, tide and time Affect both sides of any levee system. Consequently, the levees of the proposed project have an extraordinary set of tasks: to act as a mass, circular dam; to resist water from both directions, unlike most dams (levees); and to do all of this for great horizontal distances. One need only look at the condition of previous levee failures in the Delta, where a repair was not completed, for whatever reason, to see first hand what happens to levees with water lapping up, over and through on both sides.

Diagrams of mitigations in the EIR are contradicted elsewhere in the text of the EIR. One diagram shows a 10/1 graded, sloping "toe berm" meant to anchor the interior base of the reservoir levees. This measure seems adequate, until the EIR later explains that soil subsidence could continue and increase the reservoir's capacity by nine percent within

C10-1

C10-2

C10-3

-2-

50 years. This is promoted as a benefit to the levee system in the EIR, but it ignores the fact that toe berms and other levee strengthening measures will sink along with the surrounding soil level and therefore be less effective.

C10-3 cont'd

The EIR states that discontinuing farming will reduce subsidence and thus increase levee stability. This conclusion is unsupported. Subsidence will occur with the proposed project, as well. Agricultural use permits access and additional levee wall support. The proposed project will add water pressure along the island side of the levee and exacerbate levee erosion.

C10-4

### II. TRANSPORTATION, TRAFFIC & BRIDGE IMPACTS

The approach roads, which course through miles of peat rich farmland, are not considered in the EIR. It is anticipated that the proposed project will impose more frequent maintenance than is presently required of County maintenance crews. Mitigation of the impacts to County infrastructure after completion of the proposed project and the projected increases in recreational traffic need to be included.

C10-5

Increased recreational use of levee and approach roads from State Highway Routes 4 and 12 may adversely impact agricultural activity adjacent to the approach roads leading to and away from the proposed project. Recreational vehicles mixed with semi-tractor/trailer traffic upon narrow levee roads may require additional road improvements to accommodate vehicle passing movements and line of sight problems at trestles and bridges.

Increased traffic upon delta waterways within the County arising out of the proposed project will accelerate deterioration of bridge improvements. Specifically, the Bacon Island Road crossing at Middle River will be impacted. Both water and vehicular traffic increases will require additional opening and closing movements of the swing span portion of Bacon Island Road Bridge. Accident statistics could be expected to increase on both water and roadways during periods of boat and vehicle queuing during bridge operations.

C10-6

The proposed project mitigation measures are, at present, insufficient to mitigate the accelerated wear and tear on County roads and bridges serving the proposed project.

#### III. ECONOMIC EFFECTS

San Joaquin County is concerned with the loss of agricultural income and employment from the proposed project. Loss of tax revenue from agricultural income is a corresponding concern.

The EIR specifies that no economic conclusions are made since the California Environmental Quality Act and National Environmental Policy Act do not consider economic impacts to be environmental. In the very next paragraph, however, the EIR states that proposed project related activities will generate a net increase in employment and income.

C10-7

The possibility of recreational activities having a much smaller economic contribution than hoped for at project build-out exists, as well. Although ambitious plans are outlined within the EIR which describe multiple, resort-like recreation facilities ringing the project islands, corresponding descriptions of who will finance and operate these facilities are murky at best. Should there be no investors, then there will be no jobs and no tax revenue.

San Joaquin County maintains that more questions regarding the economic impacts of the proposed project should be asked and satisfactorily answered.

Mr. Jim Sutton DRAFT EIR/EIS FOR THE DELTA WETLANDS PROJECT

### IV. CENTRAL DELTA WATER AGENCY

San Joaquin County also supports any comments submitted by the Central Delta Water Agency.

#### CONCLUSION

The project proponent is asked to consider the above comments, expand and improve the quality of the analysis as necessary to mitigate roadway, levee, flood, safety and maintenance concerns of San Joaquin County Department of Public Works. If that is not possible or feasible, then please reconsider the no project alternative as appropriate mitigation to the significant infrastructure, safety and financial impacts to the citizens of San Joaquin County not discussed nor suitably mitigated in the EIR for the proposed project.

If you have any questions regarding these comments, call me at (209) 468-3073. Please notify the San Joaquin County Department of Public Works of any hearing or subsequent document regarding this proposed project or any other proposed project upstream from or adjacent to this project which San Joaquin County, the Lead Agency or project proponent may contemplate in the future.

Very truly yours.

A. J. TSCHIRKY Real Property Agent

AJT:KH:sc

### San Joaquin County Department of Public Works

- C10-1. Appendix H, "Levee Stability and Seepage Technical Report", of the 2000 REIR/EIS presents an evaluation of levee stability for the Delta Wetlands reservoir levees and of worst-case outward levee failure. Based on the results of the analysis and on mitigation measures recommended to improve the factor of safety for slope stability toward the slough, the risk of an outward levee failure during maximum reservoir operations is very small; therefore, property damage or changes in flood conditions resulting from levee failure are not foreseeable effects of the Delta Wetlands Project. Because the Delta Wetlands Project does not present a flood threat to San Joaquin County, no changes in flood preparedness are required. See Chapter 3D of FEIS Volume 1 and Appendix H of the 2000 REIR/EIS for more information.
- C10-2. The commenter is referring to information or analysis in the 1995 DEIR/EIS that was replaced or augmented by the 2000 REIR/EIS. Appendix H, "Levee Stability and Seepage Technical Report", of the 2000 REIR/EIS presents a new analysis of the potential seepage impacts of Delta Wetlands reservoir operations and an evaluation of the stability of the proposed levees on the reservoir islands. The analysis of levee stability evaluates wind and wave run-up on the interior of the islands and examines the effectiveness of the erosion control methods proposed by Delta Wetlands. See Chapter 3D of FEIS Volume 1 and Appendix H of the 2000 REIR/EIS for more information.
- C10-3. The commenter is correct in stating that subsidence would affect the levee toe berms over time. The levee maintenance program described in the 1995 DEIR/EIS includes raising the levee crest by adding fill, placing additional erosion protection where needed, and repairing the levee as needed to compensate for settling, erosion, and subsidence. To monitor changes in the levee structure, Delta Wetlands would conduct levee profile surveys annually for the first 5 years of operation and triannually thereafter and would submit the survey results to DWR, the SWRCB, and USACE. Any changes in levee structure caused by subsidence of the island interiors would be mitigated through this monitoring and maintenance program.
- **C10-4.** As described in Chapter 3D, subsidence in the Delta results primarily from conversion of peat soil into gas, a condition exacerbated by agricultural activity. The 1995 DEIR/EIS therefore assumes that the rate of subsidence under project conditions would be less than that under agricultural production.

Erosion of the interior slope of the levees surrounding the Delta Wetlands reservoir islands is discussed in Chapter 3D of FEIS Volume 1 and in Appendix H of the 2000 REIR/EIS. Erosion of the interior slopes would be monitored and mitigated during project operation. The inner levee system constructed on the reservoir islands would provide motorized access on the islands for levee inspections during periods of nonstorage.

**C10-5.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".

- **C10-6.** See the section entitled "Roadway Safety and Maintenance" in Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".
- C10-7. The requirements of CEQA and NEPA regarding the economic and social effects of the project are discussed on pages 3K-1 and 3K-2 of the 1995 DEIR/EIS (page 3K-2 of FEIS Volume 1) under "Introduction". In summary, economic effects are not considered environmental impacts in and of themselves, but a project's economic effects may be discussed in the NEPA and CEQA analysis.

The potential fiscal effects of Alternative 1 are discussed on pages 3K-10 and 3K-11 of the 1995 DEIR/EIS (page 3K-14 of FEIS Volume 1) under "Fiscal Effects". Based on estimated construction costs for water storage and recreation facilities, property tax revenue generated by the project could increase by more than \$1.6 million over existing revenue generated by the Delta Wetlands Project islands. Even without construction of recreation facilities, with-project property tax revenue payments would be substantially higher than existing payments. Increased regional income generated by the project by employment growth would also generate increased sales tax revenues. Increased public revenues generated by the project would be allocated among Contra Costa County and San Joaquin Counties and several special districts.

In May 2001, Delta Wetlands removed construction of recreation facilities from its CWA permit application. However, it is anticipated that Delta Wetlands would apply for permits for some or all of the recreation facilities when specific designs are developed for the facilities. Facilities would be developed over a long time period, based on demand for recreational uses. Although the economic analysis is based on full development of the recreation facilities described in the 1995 DEIR/EIS, the partial development of planned facilities would not substantially change the conclusion that the project would result in net growth in regional employment and income. As Tables 3K-5 and 3K-6 of the 1995 DEIR/EIS show, implementation of Alternative 1 would result in the net gain of 31 permanent jobs and \$4.9 million in annual regional income even without the estimated employment and income generated by the operation and use of recreation facilities.

C11-1



1810 E. HAZELTON AVE., STOCKTON, CA 95205-6232 PHONE: 209/468-3121 Fax: 209/468-3163

December 20, 1995

State Water Resources Control Board Division of Water Rights Attn: Jim Sutton P.O.Box 2000 Sacramento, CA 95812-2000

U.S. Army Corps of Engineers Regulatory Branch Attn: Jim Monroe 1325 J Street, Room 1444 Sacramento, CA 95814-2922

Re: Draft EIR/EIS for the Delta Wetlands Project, Supplemental Comments

These comments are intended to supplement our comments of 11/14/95. They specifically address State Route 12 on Bouldin Island, an island proposed for wetland development.

State Route 12 is presently a two lane highway, providing an important link from State Route 99 and Interstate 5 to Interstate 80 and the Bay Area. For some time it has been recognized that SR 12 needs to be widened. The San Joaquin County General Plan, adopted by the County in 1992, calls for the widening of SR 12 to four lanes to carry the projected 2010 traffic.

To accommodate a four lane roadway, Caltrans will need to acquire additional right-of-way. In the proposed Delta Wetland project, adequate right-of-way needs to be reserved for the eventual widening of the road. No wetland development should occur within this future right-of-way. In addition, the project should provide protection for SR 12 so that no seepage is allowed to undermine the highway.

If you have any questions regarding my comments, please contact me at (209) 468-3146.

Sincerely

Peggy Keranen Deputy Director

c. Manuel Lopez. Public Works
John Pulver, Public Works
David Edrosolon, Public Works
Richard Laiblin, CAO
Dana Cowell, Caltrans
Margit Aramburu, Delta Protection Commission
(with 11/14/95 comments)
6.6.03.12
DLTWET.LT2

### San Joaquin County Community Development Department

C11-1.	These issues have been addressed in response to Caltrans' comments on the 1995 DEIR/EIS. See responses to Comments B8-1 through B8-11 for more information.

# HOE

### San Joaquin County Council of Governments

Member Agencies: Cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, Tracy, County of San Joaquin

December 21, 1995

Mr. Jim Monroe U.S. Army Corps Of Engineers Regulatory Branch 1325 J Street 14th Floor Sacramento, CA 95814-2922

Dear Mr. Monroe:

I am writing in regards to the Delta Wetlands Project environmental analysis and the Council of Governments interests. As the regional planning agency for San Joaquin County we have an interest in both habitat protection and in the safe and effective operation of the regional transportation system. Your proposal has implications for both of these issues.

### Habitat and Open Space Protection

As the Council of Governments works through 1996 on the development of a regional plan to protect the habitat of threatened and endangered species, we will be keeping an eye on your efforts for how we can be mutually supportive. Our effort will involve the potential need to acquire through easements or outright purchases "habitat preserves" to mitigate for development proposals in our region. Your effort presents an excellent opportunity for joint cooperation.

### 2. Regional Transportation Systems

The San Joaquin Council of Governments, acting as the Transportation Authority for this county has allocated \$1.7 million of Measure K funds to widen Highway 12 to provide for better operations of a facility that is heading for major capacity problems. This may very well involve the need to acquire right of way, or at least modify the existing road bed within the existing right of way to accommodate operational improvements. Caltrans has indicated to you and to us that your proposal, while possibly not preventing our project, will greatly constrain and impact our options. The likely outcome is a change in our project scope, and a resulting increase in project cost can be expected. We share Caltrans' concern and

C12-1

Mr. Jim Monroe December 21, 1995 Page 2

interest in your proposal not abutting the right of way line so that the constraints and impacts on our project are minimized.

In the interest of good public planning and the safety and operations of a vital transportation link, I am sure you will see the benefit to the public at large and to your own interests in mitigating any impacts on our funded project.

C12-1

cont'd

Thank you for your consideration of our interest, and I look forward to working with you in the future.

Sincerely,

ANDREW T. CHESLEY

Deputy Executive Director

cc: Peggy Keranen, San Joaquin County Planning

Dana Cowell, Caltrans District 10

Amy Augustine, San Joaquin COG - Habitat Planning

## CONGESTION RELIEF PROJECTS

PROJECT:	Route 12				
PROJECT SPONSOR:	Caltrans				
INTERESTED PARTIES:	San Joaquin County, City of Lodi				
PROJECT SCOPE:					
Construct two passing lanes (1 each direction) near Potato Slough Bridge. The existing facility is a 2-lane rural highway.					
PROJECT COST ESTIMATI	ES* (\$1993):				
Pre-Project Study Report	\$				
Project Study Report (PSR)	\$104,000				
Project Report & Environment	al Review \$832,000				
Right-of-Way Acquisition	\$				
Plans, Specifications & Estima	tes (PSE)				
Construction	\$2,730,000				
Total Cost (does not include R	OW)\$4,498,000				
* These estimates escalated th	ie 1992 Strategic Plan numbers.				
EXPECTED REVENUE SO	URCES (\$1993):				
	\$1,781,000				
Local Street Repair Funds (I Gasoline Tax Revenues	S (Sper)				
State-Local Partnership Environmental Enhancemen	ement Program				

### CONGESTION RELIEF PROJECTS

leral: urface Transportation Program
management Activities
The company of System Management
Tolomon Ecomy Account
other vibiation Escrew Account
Cotal Revenues
oral Revenues
arrolus/(Shortfall)

### MEASURE K ALLOCATION BY YEAR:

2005/6	
\$416,000	

2006/7 \$683,000 2007/8 \$683,000

<u> </u>	Completion Date
July 2000	June 2001
Nov. 2004	May 2005
Not available at this time.	
Jun. 2005	Sept. 2006
Jan. 2007	Feb. 2008
	Nov. 2004 Not available at this Jun. 2005

### ISSUES:

- May need to increase right-of-way due to flooding concerns.
- The construction estimate provided by Caltrans lowers the cost of the project substantially. As a result, the 1992 Measure K allocation and the share of state funds should be reconsidered. However, until a decision is made, the 50% Measure K share and 50% state funding assumption will be maintained.

### **San Joaquin County Council of Governments**

C12-1.	<ol> <li>This issue has been addressed in response to Caltrans' comments on the 1995 DEIF See responses to Comments B8-1 through B8-11 for more information.</li> </ol>		

Harvey E. Bragdon Director of Community Development

Community Development Department

County Administration Building 651 Pine Street 4th Floor, North Wing Martinez, California 94553-0095

Phone:

(510) 646-2034



December 21, 1995

U.S. Army Corps of Engineers Regulatory Branch Attention: Jim Monroe 1325 J Street, Room 1444 Sacramento, CA 95814-2922

Dear Mr. Monroe,

Thank you for the opportunity to review the Draft Environmental Impact Report and Environmental Impact Statement for the Delta Wetlands Project. Generally, the report is exhaustingly thorough. There are, however, a range of issues which are of concern to the County and to which we need responses.

First, as a statement, we recognize that NEPA requires consideration of a range of alternatives to be discussed throughout the EIR/EIS. However, the Habitat Management Plan (HMP) in the appendices and the thrust of the body of the EIR all imply that Alternative 3 is not really viable in terms of mitigation of project impacts. We could spend considerable effort commenting on that alternative but have chosen not to, given our belief that for that alternative to be chosen additional environmental review would be required. It does not provide mitigations for on-site habitat issues. No off-site solutions are proposed. Given County, State and Federal regulations and policies, the document would need substantial augmentation and recirculation for the selection of Alternative 3. We feel Alternative 1 and 2 effectively cover the worst case scenarios to be considered.

Second, it would be impossible for the reader not to be aware of the amount of effort and creativity put forth in the development of the proposal. The amount of technical work necessary to analyze this complex project, and the cooperation of the applicant and State and Federal Agencies to bring the document to this point in the process, is obvious. Staff and consultants should be commended for their efforts to date.

Now to specifics on the Draft document. Page 3D-5 discusses the Delta Flood Protection Act of 1988. It indicates in the second paragraph that it authorized \$12 million annually through 1998-1999. Should that read 1988-1999? At the end of this

C13-1

C13-2

U.S. Army Corps of Engineers Mr. Jim Monroe December 21, 1995 -Page 2-

paragraph it states "under the Delta Flood Protection Act, no project receiving funding from the act can result in a net long-term loss of riparian, fishery, or wildlife habitat, and a DFG finding to that effect must be issued before funds are disbursed." Have any of the four islands in this application received funds under this act? What assurances have been given to DFG and how does this project effect those assurances?

C13-3

The role of Local Reclamation Districts is discussed on page 3D-6. If the project is approved as applied for, 3 of the 4 islands will be wholly owned by Delta Wetlands. The project description implies that Delta Wetlands will be responsible for levee repair and maintenance (as does the HMP in the Appendices). What will be the role of the Reclamation Districts relative to the project? Will the 3 wholly owned islands be maintained by Delta Wetlands and the Reclamation Districts be obsolete and be abolished? There may be some merit for abolition of these districts if the islands are wholly owned by a private corporation. The discussion on Financing the Levee System on page 3D-19 is not clear in this regard. That section states that "the cost of reclamation would be much lower than in the use of existing Delta levees because much (emphasized) of the routine maintenance would not fall within State and Federal costsharing programs". Specifically, what State and Federal funds are still proposed to be utilized for maintenance? Given the economic analysis found in the EIR, why should any State or Federal funds continue to be needed for levee maintenance and repair? Shouldn't all obligations be transferred to Delta Wetlands except for Holland Tract, (which they won't wholly control)? Since this is listed as a beneficial impact, the final document should clarify any government levee maintenance subsidy that would still accrue to the project. In case of a levee failure, will State and Federal funding (subsidy) be allowed?

C13-4

C13-5

Page 3E-2 under Webb Tract references the Delta Ferry Authority. It indicates that this authority is jointly funded by Contra Costa County, the Webb Tract Reclamation

District and the Bradford Island Reclamation District. That was an interim financial arrangement. The County is no longer funding the ferry services. The County still collects local funds through a County service area for this service; about \$15,000/year. It is transferred to the ferry operator. The impact of this project on the existing ferry service is discussed on page 3E-6 and that anticipates a decline in usage. If that's true

service is discussed on page 3E-6 and that anticipates a decline in usage. If that's true, then the project raises the issue of the viability of the continuance of the ferry service. Delta Wetlands may need to subsidize the service to keep it viable. Without the ferry

service, the recreational facilities on Webb Tract would probably be infeasible. Having Delta Wetlands subsidize the ferry service should be made a mitigation measure for the project. Impact E-2 needs to be revisited to assure additional ferry operational funding.

C13-7

C13-6

U.S. Army Corps of Engineers Mr. Jim Monroe December 21, 1995 -Page 3-

The discussion on page 3E-2 indicates that the County in 1993 "abandoned those sections of Holland Tract Road on the west and east perimeter levees past the locked gates". That was done in response to a request of the reclamation district for these vacations. The last time staff visited the perimeter roads on the west and east levees, they were not passable to passenger vehicles, however, trucks and four wheel drive vehicles could utilize those roads. If the recreational facilities are to be approved by the County, improved road access to all the recreation facilities will be required. The roadways will be private driveways and will need to be maintained by either the reclamation district or the owner of the recreation facilities. This should be made a mitigation measure in the Final EIR.

C13-8

Mitigation Measure E-4 on page 3E-11, dealing with private security services, is essential if the recreation component is to be developed.

C13-9

The discussion of providing fire district services to the recreation facilities on Webb Tract is casually mentioned in Mitigation Measure E-5 on page 3E-11. While procedurally, this mitigation measure is correct, there may be impacts associated with placing this island into a fire district. The Bethel Island Fire Protection District is the nearest district; and it is largely a volunteer fire protection district. Such a district relies on local residents to serve as volunteers and to man the fire equipment. The project description does not indicate if there will be caretakers and/or permanent staff associated with recreational facilities. It does not indicate if Delta Wetlands employees will be largely day workers or if 24 hour a day coverage will be provided. Such employees could form the basis of a volunteer district staff.

C13-10

Unfortunately, the response time for fire equipment and manpower to arrive by boat from Bethel Island would be long. On island fire fighting capability would be desirable should the recreation facilities proceed. Mitigation Measure E-6 should be strengthened to require local fire fighting capability to serve the proposed recreational facilities (rather than just annexation to a district). Districts, per se, don't fight fires, manpower and equipment does. The island roads will need to be improved to handle fire equipment.

C13-11

The discussion of water, sewage and solid waste facilities to serve the recreational facilities is very generalized and merely indicates the need to meet County requirements. The Mitigation Measures E-7, E-10 and E-12 just require obtaining appropriate local and state permits for recreational facility services and utilities. This lack of specificity may require supplemental environmental analysis.

U.S. Army Corps of Engineers Mr. Jim Monroe December 21, 1995 -Page 4-

On page 3F-15 Mitigation Measure F-1 requires providing information to USFWS and DFG on fish habitat. The information called for would be helpful to the Counties in consideration of the permits for location of the recreational facilities. A sentence should be added to this mitigation measure which requires this material to be submitted to the Counties when considering the recreational facilities and urging coordination of that review with USFWS and DFG.

C13-12

On page 3I-12 under Webb Tract, it indicates "the clubhouse on the eastern tip of the island is sited above the proposed high water level and could remain onsite". Could this be converted to one of the proposed recreation facilities by Delta Wetlands or are they asking for the other new facilities plus this existing one? The project description Figure 2.3 does not show this existing clubhouse. If it is to remain, does this change the project description? Are there added impacts, e.g., traffic, if it continues to exist?

C13-13

On page 3I-12, there is a discussion of the Williamson Act Contract on Webb Tract and that County staff has determined the water component to be consistent with the current Williamson Act. While that is correct, it would be desirable for the applicant to notify the County of his intent to non-renew this contract and the issue of Williamson Act status will resolve itself over time.

C13-14

On page 3I-12, it discusses Contra Costa County staff's view that for the proposed level of recreation facilities will require rezoning to Planned Unit District. The same discussion takes place on page 3I-13 dealing with Holland Tract. If these areas aren't to be rezoned then land use permits will be required. Unfortunately Table 4-1 in Chapter 4 Permit and Environmental Review and Consultation Requirements, fails to list either rezoning or land use permits. Those concepts should be added to Table 4-1. Health Department permits for water and sewage issues should also be added to that table, consistent with prior EIR text.

C13-15

Page 3I-2 correctly indicates that the Contra Costa County General Plan contains policies which urge the preservation of prime agricultural soils. The County General Plan defines prime agricultural soils as Class I and II soils; it does not utilize the NRCS system. Holland Island and Webb Tract are almost exclusively Class III and IV soils. Consequently, the discussion on page 3I-14 on the conflict with our prime agricultural soils policies in the County General Plan misses the mark.

C13-16

Page 3I-6 under Holland Tract, states that Veale Tract is within the Urban Limit Line (ULL) and so development is likely to occur within the next 20 years. This statement

C13-17

U.S. Army Corps of Engineers Mr. Jim Monroe December 21, 1995 -Page 5-

is incorrect. Being inside the ULL would allow consideration of a general plan amendment from agricultural to urban use, not a presumption that such change could occur. C13-17 cont'd

Page 3L-11 discusses barge traffic to import rock to the project sites for levee stabilization. No source(s) of rock is identified. Importing rock will affect truck trips. No loading points for the barges are identified. Truck trips will affect road capacity. More importantly, if they travel on rural delta roads they could cause substantial impacts to the structural integrity of these roads. The Final EIR needs to identify the probability of truck traffic on specific roads for rock and other construction materials. This discussion needs to be coordinated with the Public Works Departments of the affected counties. Adequate mitigation needs to be suggested in the Final EIR; that could include resurfacing or roads to withstand the wear and tear of the truck traffic.

C13-18

On more general issues, there is a recommendation in the DEIR for a \$2/acre foot Fishery Enhancement Fund. Will the use of this money be restricted to studies and programs for the Bay Delta System? They should be. Could the mitigation measure be modified to insure notification of the Contra Costa County Water Agency when meetings are held to discuss use of these funds? The use of these funds should be restricted to Bay Delta projects and not be used to cover staff operational costs. A mitigation measure should provide for such limitations.

C13-19

Proposed Delta Wetlands project operations could result in lower water quality in some instances, impacting Contra Costa Water District drinking water intakes at Rock Slough and Old River. In particular, it is not clear how project operations could affect CCWD's ability to fill the Los Vaqueror Reservoir. How will project operations affect the ability to fill the Los Vaqueror Reservoir with higher quality water?

C13-20

It is not clear how Delta Wetland reservoir filling could occur during below normal and dry water years. What are the effects of reduced reservoir filling versus a full reservoir scenario? If no filling occurs in the absence of surplus flows, how will the reservoir islands be managed?

C13-21

Despite the significant degree of evaluation contained throughout Chapter 3 of the draft EIR/EIS and appendices, questions and concerns remain relative to water quality impacts, given the wide range of conditions found over time in a very complex and little-understood Delta system. In addition, the effects on fish due to reduction of outflow and resultant change in flow patterns remains unclear. Models, although helpful in

U.S. Army Corps of Engineers Mr. Jim Monroe December 21, 1995 -Page 6-

gauging general change, do not provide a great degree of certainty, given the wide range of varying, complex conditions found in the Delta. For these reasons, Contra Costa County requests that a detailed, ongoing monitoring program be instituted to allow continued specified assessment of these important issues and their impacts, should this project be implemented. This could have an added benefit in continued assessment as to this project's potential for impacts relative to other water rights, (determined not to be significant, as described on page 3A-11).

C13-22

The DEIR does not discuss the greenhouse effect and its potential impacts on this project. While the impacts of the concept are sharply debated, the concept that there is something climatically going on that seems to be scientifically defensible. This could effect levee height requirements, etc. Some discussion of this problem would appear mandatory.

C13-23

No site specifics are presently included on the proposed recreational facilities. The document did not include any information on if the hunting facilities as proposed, are marketable. Nor did it describe the organization structure. Will they be for individual clubs or will Delta Wetlands manage them as a unit? While a schematic is included in an appendix on what a typical recreation facility design might look like, no interior design or elevations are provided. The exact location of the facilities are not identified. The road improvements necessary to serve the facilities will need to be identified. All these items will be needed by the counties for consideration of the recreational facilities. If Delta Wetlands intends to permit these over time and not all at once (or build them over time), follow-up environmental documentation may be needed. The Final EIR should set the stage for subsequent environmental documents.

C13-24

As is clear from the prior comments, most of our concerns focus on the proposed recreational facilities for which the County will be a permitting agency. The Final EIR will be adequate to consider the larger issues behind the Delta Wetlands project. It may, however, need to be supplemented for County consideration of the recreation facilities.

C13-25

The EIR/EIS does not appear to discuss inclusion of public access onto these islands. The recreation component should include some public access points, and these areas should be included in environmental review of the project.

C13-26

As a last comment, the Habitat Management Plan (Appendix C-3) appears to be complete and workable. The hunting component, however, will be dependant on the ability to approve the recreation facilities. That won't be known until after the lead

U.S. Army Corps of Engineers Mr. Jim Monroe December 21, 1995 -Page 7-

State and Federal Agencies make determinations on the water storage concepts.

| C13-26

If you have any questions on these comments, feel free to call Jim Cutler at (510) 646-2034 or Roberta Goulart at (510) 646-2071.

Sincerely yours,

Jim Cutler

Assistant Director,

Comprehensive Planning

JWC:drb JWC1995\drb\deltawet.eir ediandoes\deltawet.jc RRG4:mouroe.ltr

### **Contra Costa County Community Development Department**

- C13-1. The Delta Wetlands Project alternatives (Alternatives 1, 2, and 3) and the No-Project Alternative were selected to represent a range of project operations for purposes of determining environmental impacts. Although Alternative 3 represents the maximum water diversions under Delta Wetlands' water right application, it is not proposed by the project applicant. As described in Chapter 2 of Volume 1 of this FEIS, the project applicant's proposed project consists of storage of water on two reservoir islands and implementation of an HMP on two habitat islands. This FEIS recognizes that implementation of Alternative 3 would require additional offsite mitigation of impacts on wildlife and wetlands (see Chapters 3G and 3H).
- **C13-2.** The reference to 1998–1999 in the second paragraph on page 3D-5 of the 1995 DEIR/EIS (see page 3D-5 of FEIS Volume 1) refers to the fiscal year through which the Delta Flood Protection Act applies. To clarify this information, the third sentence is revised to read as follows:

The Delta Flood Protection Act of 1988 authorized \$12 million annually through 1998-1999 between fiscal years 1988–1989 and 1998–1999, with the money to be split between supplementing local revenues and funding special levee projects in the western Delta and flood protection for Walnut Grove and Thornton.

- C13-3. The reclamation districts on the four Delta Wetlands Project islands currently receive funding under the Delta Flood Protection Act and may continue to receive such funding after the proposed project is built. As described in response to Comment B6-18 from DFG, the activities of current and former landowners of the Delta Wetlands Project islands conducted under the Delta Flood Protection Act (SB 34) program are not part of the proposed project or project alternatives. These activities, regulated by Delta Wetlands, are subject to separate environmental review and mitigation requirements.
- C13-4. The reclamation districts are made up of an island's landowners. These districts finance levee maintenance work through assessments on protected landowners. The reclamation districts for the Delta Wetlands Project islands would continue to operate and maintain the island levees as a quasi-public agency in accordance with the rules and regulations contained in the State Water Code. Currently, there are many single-owner reclamation districts in the Delta; the districts for the Delta Wetlands islands would not be unique. The sole ownership of an island does not change the responsibilities of the reclamation district.
- C13-5. As described in response to Comment C13-3 above, the Delta Wetlands Project islands would continue to be eligible for state and federal funding for levee protection. The long-term costs of levee maintenance likely would be lower under project conditions for several reasons. First, Delta Wetlands would invest considerable funds to improve the reservoir islands' perimeter levees at the onset of the project. In addition, Delta Wetlands would implement a comprehensive levee monitoring program to help detect levee stability

problems and reduce the risk of levee failure. Finally, project operations would reduce the rate of subsidence on the islands, which would contribute significantly to levee maintenance costs under future no-project conditions.

C13-6. Ferry services provided by the Delta Ferry Authority were discussed generally in Chapter 3E, "Utilities and Highways" of the 1995 DEIR/EIS, on page 3E-2 under "Highways, County Roads, and Ferry Service". The 1995 DEIR/EIS has been revised to update the description of Contra Costa County's involvement in funding the ferry service. The last sentence of the first paragraph under "Webb Tract" (FEIS page 3E-2) and the last sentence of the second paragraph under "Webb Tract" (FEIS page 3L-3) is revised as follows:

The ferry system is funded under a resolution by Contra Costa County, Webb Tract Reclamation District and the Bradford Island Reclamation District, at one-third per entity. The ferry system is funded through the Delta Ferry Authority. The Delta Ferry Authority is composed of Contra Costa County, Webb Tract Reclamation District, and Bradford Reclamation District. Each reclamation district provides approximately \$50,000 per year in funding for the ferry service (Heringer pers. comm.), while Contra Costa County collects approximately \$15,000 per year in local funds to support the ferry service (Cutler pers. comm.). The Delta Ferry Authority collects these monies to fund operation of the ferry.

The following citations have been added to Chapter 3E:

Cutler, Jim. Assistant director, Comprehensive Planning. Contra Costa

County Community Development Department, Martinez, CA. December

21, 1995—letter to Jim Monroe, U.S. Army Corps of Engineers,
commenting on the 1995 Draft Environmental Impact
Report/Environmental Impact Statement for the Delta Wetlands Project.

<u>Heringer, Ralph. Operations. Delta Ferry Authority (Bouldin Farming Company), Contra Costa County, CA. February 27, 1996—telephone conversation with Amanda Brodie of Jones & Stokes.</u>

C13-7. The Delta Wetlands Project and Bradford Island have a mutual need for the use of the ferry system. The projected traffic volumes for recreational use of the Delta Wetlands Project islands reported in the 1995 DEIR/EIS indicate that ferry use to Webb Tract would be greater after project implementation than it is now. Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities", describes a proposed mitigation measure that would reduce recreation-related traffic. As described in Chapter 3E, changes in ferry use would not affect funding for the ferry system because ferry revenues are not generated by passenger fees, and Delta Wetlands does not foresee withdrawing funding or discontinuing the ferry service as a result of the Delta Wetlands

Project. The following text is added after the revised text in Comment C13-6 above (page 3E-3 of FEIS Volume 1) to illustrate this point:

The Delta Wetlands Project and Bradford Island have a mutual need for the use of the ferry system. Delta Wetlands anticipates the ferry system would be used by recreationists and staff workers that are employed at the recreation facilities on Webb Tract. Delta Wetlands does not foresee the withdrawal of funding or discontinuing the ferry service (Forkel pers. comm.).

The following citation has been added to Chapter 3E:

Forkel, Dave. Project manager. Delta Wetlands, Lafayette, CA. February 20, 1996—telephone conversation with Amanda Brodie of Jones & Stokes.

- **C13-8.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".
- C13-9. The provision of private security for the recreation facilities and boat docks is described under "Police and Fire Protection Services" on page 3E-11 in Chapter 3E, "Utilities and Highways" of the 1995 DEIR/EIS (page 3E-11 of FEIS Volume 1). See also Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".
- C13-10. In response to this comment and based on subsequent conversations between the lead agencies, Delta Wetlands, and Contra Costa County, local firefighting capability would be developed on Webb Tract. Caretakers employed at the recreation facilities who are available 24 hours a day would be certified and trained to serve as volunteer firefighters. Firefighting equipment would be acquired and available for response to fire emergencies on Webb Tract.

The 1995 DEIR/EIS has been changed to include additional information regarding the development of fire district services on Webb Tract. The end of the first paragraph under Mitigation Measure E-6 has been revised to include the following text (see page 3E-11 of Volume 1 of this FEIS):

In addition, as part of the operation of the proposed recreation facilities, caretaker staff would be available 24 hours a day, trained, and certified to serve as volunteer firefighters. Delta Wetlands would acquire firefighting equipment necessary to provide adequate fire protection services on Webb Tract.

C13-11. As stated in response to Comment A3-3, the governing counties, which are responsible agencies in the CEQA process, have been consulted regarding the requirements for issuing permits for sewage facilities on the Delta Wetlands Project islands. Based on these discussions, more information has been added to Mitigation Measure E-7 (see response to Comment A3-3). If, when specific design details for recreation facilities are submitted to regulating agencies (i.e., the county), the agency determines that the NEPA and CEQA

documentation already prepared for the project does not cover site-specific environmental impacts (including water, sewage, and solid waste services) in enough detail, it may require additional environmental documentation before approving permits or entitlements. See responses to Comments A3-3 and B5-3 for more information.

C13-12. Since this comment letter was submitted, the lead agencies have concluded formal consultation with DFG, NMFS, and USFWS on project effects on listed fish species. As part of the consultation process for compliance with the federal and California ESAs, USACE, the SWRCB, NMFS, USFWS, DFG, and Delta Wetlands agreed on the project operating parameters referred to as the FOC, which have been incorporated into the proposed project. DFG, NMFS, and USFWS subsequently issued no-jeopardy biological opinions regarding project effects on listed species. The FOC and biological opinion RPMs reduce potential project effects to a less-than-significant level and replace all the mitigation measures proposed in the 1995 DEIR/EIS; therefore, no change to Mitigation Measure F-1 has been made in response to this comment. For information about the biological opinions, see Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

Delta Wetlands would be required to obtain approvals from Contra Costa and San Joaquin Counties before constructing boat docks. If, when recreation facility designs are submitted, the local regulating agency determines that the NEPA and CEQA documentation already prepared for the project does not cover site-specific environmental impacts in enough detail, it may require additional environmental documentation before approving permits or entitlements. See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities", for information about local approvals needed for the recreation facilities.

- C13-13. The existing clubhouse on the eastern tip of Webb Tract would remain and would likely be remodeled and enlarged to serve as one of the proposed recreation facilities on Webb Tract. No more than 11 recreation facilities would be established on the island, as described in Chapter 3J. No changes to the impact assessment for the recreation facilities are required. See also Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".
- **C13-14.** The decision on whether to renew the Williamson Act Contract on Webb Tract would be made by Delta Wetlands in consultation with the county.
- C13-15. Rezoning and land use permits are discussed in "Consistency with Zoning and General Plan Designations" on page 3I-12 of Chapter 3I, "Land Use and Agriculture", of the 1995 DEIR/EIS (page 3I-14 of FEIS Volume 1). Water and sewage permits are discussed in the "Water Supply Facilities and Sewage Disposal Service" section on page 3E-11 of Chapter 3E, "Utilities and Highways", of the 1995 DEIR/EIS (page 3E-12 of FEIS Volume 1). Table 4-1 of Chapter 4, "Permit and Environmental Review and Consultation Requirements", has been revised to include a description of the necessary rezoning and

land use permits and the water and sewage permits for the water supply facilities and sewage disposal service. The following information has been added to the table:

Agency and Requirements	Agency Authority	Project Activities Subject to Requirements				
Contra Costa County						
Sewer Permit	The sanitary district approves and issues permits to ensure conformance with sanitary standards and sanitary sewer work related to the repair, construction, reconstruction, or abandonment of any building sewers, connections, or discharge to a district sewer system.	Construction of recreation facilities				
Land Use Permit	The community development department issues permits to allow special zoning considerations or waive existing zoning regulations regarding the way that a property is to be used.	Construction of Delta Wetlands reservoir islands and recreation facilities				

C13-16. Based on the criteria used by the Contra Costa County Community Development Department to identify prime farmlands within its jurisdiction, the 1995 DEIR/EIS analysis of the project's consistency with Contra Costa County General Plan Policy 8-H has been changed to indicate that Alternatives 1, 2, and 3 are considered consistent with this policy.

On page 3I-12 of the 1995 DEIR/EIS (page 3I-14 of FEIS Volume 1), the last (partial) paragraph has been deleted and replaced with the following:

Consistency with General Plan Principles. Implementation of Alternative 1 would be consistent with the open space and wildlife goals and policies of the CCCGP. However, Alternative 1 is not consistent with the county's agriculture policy to encourage and enhance agriculture, and to maintain and promote a healthy and competitive agricultural economy (Policy 8-G, Table 3I-7). Although the inherent agricultural productivity of the islands would not significantly change as a result of the use of agricultural land for water storage (see "Changes in Agriculture Conditions" below), implementation of Alternative 1 would remove agricultural land in Contra Costa County from production, which is not consistent with this policy. Implementation of Alternative 1 would not be inconsistent with Policy 8-H, which encourages the preservation of prime agricultural land (Table 3I-7) because Contra Costa County does not consider Webb Tract's Class III and IV soils to represent prime farmland.

On page 3I-14 (page 3I-15 of FEIS Volume 1), the first full paragraph has been deleted and replaced with the following:

Consistency with General Plan Principles. Implementation of Alternative 1 would be consistent with the open space and wildlife goals and policies of the CCCGP because Holland Tract would be managed for wildlife habitat (Table 3I-7). However, Alternative 1 is not consistent with the county's agriculture policy to encourage and enhance agriculture, and to maintain and promote a healthy and competitive agricultural economy (Policy 8-G, Table 3I-7). Although the inherent agricultural productivity of the islands would not significantly change as a result of the use of agricultural land for habitat management (see "Changes in Agriculture Conditions" below), implementation of Alternative 1 would remove agricultural land in Contra Costa County from production, which is not consistent with this policy. Implementation of Alternative 1 would not be inconsistent with Policy 8-H, which encourages the preservation of prime agricultural land (Table 3I-7) because Contra Costa County does not consider Holland Tract's Class III and IV soils to represent prime farmland.

On page 3I-14 (page 3I-16 of FEIS Volume 1), the fourth full paragraph has been deleted and replaced with the following:

Impact I-3: Inconsistency with Contra Costa County General Plan Policy for Agricultural Lands. Implementation of Alternative 1 would convert 6,300 acres of farmland on Webb and Holland Tracts to water storage and habitat uses, respectively. This conversion, and subsequent loss of agricultural production, is not consistent with the county's agricultural principle to maintain and promote a healthy and competitive agricultural economy (Table 3I-7). Although the inherent agricultural productivity of the islands would not be significantly changed by the use of agricultural land for water storage or habitat management, the proposed use is not consistent with this general plan principle. Therefore, this impact is considered significant and unavoidable.

On page 3I-18 (page 3I-20 of FEIS Volume 1), the last sentence of the sixth full paragraph has been revised as follows:

Conversion of prime agricultural land to water storage on Holland Tract would be inconsistent with CCCGP agricultural goals. Conversion of farmland to water storage on Holland Tract would be inconsistent with the CCCGP agricultural policy (Policy 8-G) concerning the maintenance and promotion of a healthy and competitive agricultural economy (Table 3I-7).

In Table 3I-7, the consistency analysis (i.e., right hand column of the table) of Policy 8-H has been deleted and replaced with the following:

Consistent:

Implementation of the proposed project would remove agricultural land in Contra Costa County from production; however, Contra Costa County does not consider the Class III and IV soils on Holland and Webb Tracts to represent prime farmland. Therefore, the conversion of farmlands on these islands is not considered inconsistent with the county's policy of preserving prime agricultural lands for agricultural production.

**C13-17.** Veale Tract is discussed in the 1995 DEIR/EIS under "Land Uses near Holland Tract" on page 3I-6 in Chapter 3I, "Land Use and Agriculture" (see page 3I-7 of FEIS Volume 1). The text has been revised as follows:

Veale Tract is within the urban limit line for Contra Costa County, so <u>a general plan amendment to rezone the island from agricultural to urban use may be considered urban development will likely occur on Veale Tract in the next 20 years.</u>

C13-18. The 1995 DEIR/EIS has been amended to indicate that the most likely construction scenario would involve rock barges loaded directly from the San Rafael rock quarry on San Pablo Bay. Therefore, no truck trips would be generated by the transport of rock. The following sentence has been added to the first paragraph under "Navigation" (page 3L-13 of FEIS Volume 1):

These barges are most likely to be loaded directly from a quarry located on the water (e.g., the San Rafael rock quarry on San Pablo Bay).

It should also be noted that, as indicated by Table 3L-6, the number of vehicle trips generated by other aspects of construction is low and would not result in the addition of a high number of trips by heavy trucks or other types of vehicles to roadways in the project vicinity (see Impact L-1). Therefore, no additional mitigation is required.

- C13-19. The Delta Wetlands research fund, described in Chapter 2 of FEIS Volume 1, is not a mitigation measure to offset impacts of the proposed Delta Wetlands Project; it is a contribution toward Delta research and part of Delta Wetlands' proposed project. The Delta Wetlands environmental research fund is not a "fishery enhancement fund". As described in Chapter 2, the Delta Wetlands environmental research fund would be used for research in the Delta and would not be used to fulfill project permit or operation requirements.
- C13-20. See responses to Comments C9-1, C9-17, and C9-22 from CCWD.

- C13-21. As described in Chapter 2 of the 1995 DEIR/EIS and of FEIS Volume 1, Delta Wetlands diversions would occur only when all Delta outflow requirements are met and when the export limit is greater than the permitted pumping rate, so that water that is allowable for export is not being exported by the SWP and CVP pumps (see pages 2-6 and 2-7 of FEIS Volume 1). The FOC place further restrictions on Delta Wetlands diversions, as described in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions". Therefore, the reservoirs would not be filled during some below-normal or dry water years. As described on page 2-8 of the 1995 DEIR/EIS (page 2-10 of FEIS Volume 1), when water is not being stored on the reservoir islands, shallow water could be managed to create wetland habitat and enhance forage and cover for wintering waterfowl.
- C13-22. To fully determine the effects of the Delta Wetlands Project, actual conditions under project operations need to be monitored on an ongoing basis. The 1995 DEIR/EIS proposed monitoring and adaptive management measures to prevent significant project effects on water quality and fisheries. The FOC terms, which were developed after completion of the 1995 DEIR/EIS and incorporated into the proposed project, include an extensive fish monitoring program. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for a description of the elements of this program. Master Response 4 also includes information on other FOC measures that reduce potential project effects on fish by reducing project effects on flows.

In addition, in October 2000 Delta Wetlands and CCWD submitted a protest dismissal agreement to the SWRCB that includes the Delta Wetlands Project WQMP negotiated by Delta Wetlands and CUWA, which calls for extensive water quality monitoring and reporting by Delta Wetlands. Compliance with the terms of the WQMP will allow coordination of Delta Wetlands Project operations with SWP/CVP and CCWD operations. The Delta Wetlands—CCWD agreement, including the WQMP, is included in the Appendix to the Responses to Comments.

C13-23. The "greenhouse effect" postulate theorizes that changes in the earth's atmosphere will cause global warming and that seawater levels would rise in response to the melting of polar ice caps and to thermal expansion of seawater. This effect would occur over a very long period of time and likely would not be evident during the 50-year period analyzed in the 1995 DEIR/EIS. As stated by the commenter, changes in seawater levels could affect levee height requirements, but these changes would occur gradually and would be accommodated by levee maintenance during that time. The freeboard provided by Delta Wetlands Project reservoir island levees would provide ample latitude for changes in water elevations during the project's time frame.

- C13-24. The recreation facility design described in the 1995 DEIR/EIS and shown in Figures 2-7 and 2-8 of Appendix 2 are preliminary and are used for analysis of the facilities in the document. The organizational structure of the recreation facilities has not been determined but does not influence the environmental impacts described in the 1995 DEIR/EIS. See response to Comment C2-1 and Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities"...
- C13-25. The analysis presented in the 1995 DEIR/EIS assumed that the recreation facilities on the Delta Wetlands Project islands would be privately owned and operated. Implementing the Delta Wetlands Project would not reduce public access or opportunities for recreation on the project islands; therefore, the lead agencies have not required that Delta Wetlands provide for public recreation as mitigation. See responses to Comments B6-21, C2-2, and C5-1 for more information.
- C13-26. The hunting component of the HMP does not depend on the approval of recreation facilities. The hunting levels identified in the HMP could be supported without those facilities; these levels are based on the amount of hunting that the predicted waterfowl use of the Delta Wetlands Project islands could support. See Chapter 3J, "Recreation and Visual Resources", for more information.

July 2001



Office of the General Manager

December 21, 1995

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Mr. Jim Monroe U.S. Army Corps of Engineers Regulatory Branch 1325 J Street, 14th Floor Sacramento, California 95814-2922

Dear Mr. Sutton and Mr. Monroe:

Draft Environmental Impact Report/Environmental Impact Statement for the Delta Wetlands Project

We have received the Draft Environmental Impact Report/Environmental Impact Statement (DEIR/EIS) for the Delta Wetlands Project (DW Project). The proposed project involves the diversion and storage of water onto two Delta islands for later discharge for export or outflow requirements, the seasonal diversion and use of water for wetlands and wildlife habitat management on two other Delta islands, and the construction and operation of recreation facilities along the levees of all four islands. The comments herein represent the response of the Metropolitan Water District of Southern California (Metropolitan) as a potentially affected public agency.

#### Introduction

Metropolitan was formed in 1928 under an enabling Act of the California legislature. Historically, Metropolitan has provided supplemental water to the Southern California coastal plain to augment local water supplies developed by surface catchment, groundwater production, and wastewater reclamation. This supplemental water is delivered to 27 member agencies through a regional network of canals, pipelines, reservoirs, treatment plants, and appurtenant works. Metropolitan receives water from

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the California Aqueduct of the State Water Project (SWP) and from the Colorado River Aqueduct for distribution to about 250 cities and unincorporated communities within a 5,200-square-mile service area covering portions of Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties. Metropolitan currently provides about 55% of the water used in its service area.

Metropolitan is one of 29 agencies that have contracts with the Department of Water Resources (DWR) for SWP water supplies. Metropolitan's contract is for 2.011 million acre-feet per year, or nearly half of the total contracted SWP supply. This SWP supply constitutes a significant portion of the supplies available to Metropolitan.

Metropolitan is very interested in matters affecting conditions in the Sacramento-San Joaquin Delta (Delta). Metropolitan's participation in the development of the Bay/Delta Accord, and more recently in the ongoing CalFed process, is an indication of such commitment. In these efforts, Metropolitan has been working closely on several key issues with the California Urban Water Agencies (CUWA), of which Metropolitan is a member. Metropolitan has reviewed and provided input into CUWA's comment letter on the DEIR/EIS, and supports the findings contained therein.

### Overall

In general, Metropolitan is supportive of planning efforts which are designed to meet the increasing water needs of California in an environmentally sound manner. The DW Project is clearly an attempt to achieve a balance between beneficial uses of water. After review of the DEIR/EIS, however, Metropolitan has concerns that the proposed DW Project could adversely affect the quality and quantity of the SWP water it receives from the Delta, and could adversely affect Delta fisheries. The following comments from Metropolitan should be fully addressed in the final EIR/EIS, and the impacts that have been identified need to be avoided or mitigated to a level of insignificance.

### Water Quality

### Inaccuracies of Water Quality Tests Performed

In Appendices C2 and C3 of the DEIR/EIS, which describe the water quality testing done to analyze Delta agricultural drainage and potential sources of dissolved organics and trihalomethane precursors, the discussions refer to problems experienced by the DW Project's contract laboratory in their testing. These include

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problems with the measurement of trihalomethane formation potential (THMFP) (pages C2-9 and C3-9), and variability problems associated with the DW Project contract laboratory analytical measurements (page C3-10).

These problems, as described briefly below, call into question the accuracy of: the results of these tests performed, any analyses performed using these results, and any determination of significance or proposed mitigation based on these results. This is especially significant with regards to THMFP and its impacts on Metropolitan's SWP water supplies. These water quality testing problems should be corrected, or at a minimum discussed and the resulting implications identified, in the final EIR/EIS so that potential impacts of the DW Project on water quality can be accurately identified and appropriately mitigated.

THMFP Testing Method--The analytical method for THMFP currently used by DWR has changed from the method described in the DEIR/EIS on page C2-9. The current method requires dilution of samples containing more than 10 mg/l of dissolved organic carbon (DOC) before addition of a 120 mg/l standard chlorination dose, not 30 mg/l of DOC as is described in the DEIR/EIS. This is documented in greater detail in the attached "Detailed Water Quality Comments on Delta Wetlands Project EIR/EIS" (Water Quality Comments), primarily on pages 1 through 3. The Water Quality Comments also includes additional background information regarding problems with the THMFP method that are not documented in the DEIR/EIS, and includes references to document the justification for changes that were made in the DWR THMFP method.

<u>Testing Laboratory Quality Control Problems</u>—Metropolitan's review of the analytical methods utilized by the DW Project's contracting laboratories related to THMFP and other water quality testing identified several areas of possible quality control problems. These problem areas, described in detail in the attached Water Quality Comments, pages 4 through 6, include the following:

- Filtration of samples through an appropriate filter to remove suspended matter was not performed, affecting the THMFP test.
- In the vegetation decay experiments, samples collected with hydrogen sulfide were not filtered to remove the hydrogen sulfide, affecting the THMFP test.
- In some earlier tests, chlorine residual at the end of THMFP tests was not measured.
- THMFP samples were not pH-adjusted.

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 A standardized THMFP protocol and a calibrated chlorine solution were not used, resulting in inconsistent THMFP test results.

Chlorine solutions were not stored at the proper temperature.

 Anion/cation balance checks were not performed, and could have identified measurement problems.

### Impacts of Storing Water on DW Islands

Vegetation Decay Experiments—The DEIR/EIS covers vegetation decay experiments on page C3-3, pages C3-8 to C3-13, and Tables C3-4 through C3-7. As indicated in the DEIR/EIS on page C3-9, duplicate samples were sent to Metropolitan for analyses of water quality parameters. The attached Water Quality Comments, pages 6 and 7, contains additional technical information on these experiments and includes the conclusion that data from the vegetation decay experiments indicates that the wetlands vegetation can contribute disinfectant by-products (DBP) precursors into the Delta. Metropolitan's analysis indicates that these DBPs include trihalomethanes (THM) and haloacetic acids (HAA). Failure to recognize such information has resulted in the conclusions in the DEIR/EIS regarding increased THM levels to be understated. Additional analysis should be conducted to address increased THM and HAA levels caused by vegetation decay and should be included in the final EIR/EIS.

Soil Water Extraction Experiments—These experiments are covered in the DEIR/EIS on page C3-3, pages C3-13 to C3-16, and Tables C3-8 and C3-9. The DEIR/EIS indicates that subsamples of diluted extract volumes from the soil water extraction experiments were sent to Metropolitan for analyses. The attached Water Quality Comments, pages 7 and 8, contains additional technical information on the experiments and resulting DOC and THMFP levels. The soil water extraction experiments conducted by Metropolitan led to the conclusion (similar to the vegetation decay experiments) that the DW Project will release high levels of DOC and THM precursors into the Delta. Based on these results, the conclusions contained in the DEIR/EIS relating to soil water extraction may lead to an under-estimation of increased THM levels. Information contained in the attached Water Quality Comments on increased DOC and THM levels from soil water extraction should be included in the final EIR/EIS in the analyses of overall THM and DOC increase caused by the DW Project.

Holland Tract Wetlands Experiments—The Holland Tract Wetlands Experiments conducted in 1989 and 1990 are described in the DEIR/EIS on pages C3-6 to C3-8, with results summarized in Tables C3-2 and C3-3. Metropolitan's analysis of these tests indicates that the data and resulting calculations and conclusions are seriously flawed

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C14-5

C14-6

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(see attached Water Quality Comments, pages 8 and 9). In addition, testing conducted at Metropolitan (see attached Water Quality Comments, pages 9-11) indicate that release of water from wetlands or agricultural drains will increase THM precursor loading in water exported from the Delta and will significantly increase THM levels in Delta waters following chlorination. Based on these results, any conclusions drawn from the Holland Tract Wetlands Experiment are incorrect regarding THM levels and under-estimate the severity of THM formation potential caused by wetland discharges. Discussions, analysis, and mitigation in the final EIR/EIS should be revised to reflect this information.

### Impact of DW Project on Compliance with Drinking-Water Regulations

Drinking Water Regulations--The DEIR/EIS states that by restricting DW Project discharges to prevent either (a) an increase in THM concentrations of more than 20 μg/l, or (b) THM concentrations in treated Delta export water of greater than 90 μg/l, that the impacts of elevated THM concentrations would be less than significant. This finding is inappropriate because it fails to recognize that THM standards will be made more stringent in the near future (EPA's Draft Disinfectants/Disinfection By-products Rule (Draft D/DBP Rule) contains Stage 1 and Stage 2 regulations for THMs of 80 μg/l and 40 μg/l, respectively). In addition, the Draft D/DBP Rule proposes to include five HAAs which are not discussed or studied in the DEIR/EIS. Provisions of current and future regulations, including the Draft D/DBP Rule and the Information Collection Rule, will impact agencies treating Delta water for potable use (see attached Water Quality Comments, pages 11-12). In the final EIR/EIS, the impacts of the DW Project need to be compared against these new regulations.

Impact of DW Project on Compliance with Regulations—The DEIR/EIS predicts that the DW Project will reduce DOC and THMFP compared to current agricultural operations. This prediction is not conclusively supported by data and assumptions. It is not certain that the DW Project will significantly improve the quality of water exported from the Delta (see Water Quality Comments, page 12). Unless supportable analyses are undertaken to accurately characterize the DOC and DBP formation caused by wetlands and by agricultural activities, the predictions contained in the DEIR/EIS should be deleted, or the uncertainties surrounding them discussed.

### Effects of Soil Submergence

The physico-chemical nature of submersed soils (sediments) is greatly different than that of terrestrial soils. The DW Project sediments will be anaerobic from 1-mm to 5-mm below the sediment-water interface (SWI) as a result of the consumption of oxygen in the decomposition of organic matter and the slow rate of oxygen diffusion in water as opposed to air (10,000 x slower). As a result of decomposition in the sediment,

C14-7 cont'd

C14-8

C14-9

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the pH and oxidation/reduction (REDOX) potential of sediments is greatly reduced, resulting in the increase in solubility and mobility of many organic and inorganic constituents which may adversely affect water quality. The anaerobic, low REDOX environmental conditions of submersed soils may lead to increased leaching of pesticides and other contaminants from the reservoir sediments (see following section on Pesticide Monitoring), thereby intensifying the effects of sediment resuspension and pore-water pumping (see following sections on Impacts of Sediment Resuspension and Pore-Water Pumping).

C14-10 cont'd

The effect of soil submergence and concomitant increased solubility and mobility of nutrients, metals and other compounds should be addressed in the final EIR/EIS, particularly with regard to the specific issues identified below.

Pesticide Monitoring--The potential for the DW Project to contaminate Delta water with pesticides is addressed on page 3C-11 of the DEIR/EIS, which states "Pesticide residues were low to nondetectable for agricultural chemicals known to have high potential to leach from soils." Further, "Detected residues of three herbicides observed in one soil sample from Bacon Island were the result of recent application and do not represent a concern regarding water contamination because herbicides undergo rapid chemical degradation." Problems with these statements are discussed below.

- The DEIR/EIS has focused concern only on pesticides "known to have high potential for leaching from soils." Agricultural soils are not typically submerged for extended periods as the island soils will be during the DW Project operation. Therefore, the physico-chemical nature of the DW Project island sediment environment will be greatly different from agricultural soils, under which the potential for leaching from soils was evaluated. The solubility of a wide range of compounds significantly increases under the conditions typically found in submersed soils or sediments. Therefore, the ease of leaching of compounds considered by the DEIR/EIS may be underestimated and other compounds with significant potential for leaching may not have been fully considered.
- Metropolitan's experience with herbicides demonstrates that there is misinformation and a lack of understanding surrounding the "rapid degradation" of herbicides. The actual rate of degradation is a function of soil conditions and the favorableness of the soils for microbial productivity. In fact, some of these compounds do not degrade rapidly. These compounds do, however, adsorb to particles and dilute in runoff water leading to the appearance of degradation. The rate of leaching of these compounds after adsorption is not well defined.

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For the reasons outlined above, it is necessary that the water stored in the DW Project reservoirs be monitored for regulated and required-unregulated pesticidés in drinking water. Operational levels must be established above which water cannot be released into the Delta. This should be addressed in the final EIR/EIS.

C14-11 cont'd

Mosquito Abatement—A result of the implementation of the DW Project will be an increase in the human population for recreation activities on the DW Project islands. The increased levels of people, coupled with the increased mosquito breeding habitat produced by the DW Project, will result in increased need for mosquito abatement. In addition to the management strategies outlined in the DEIR/EIS on pages 3N-13, 14, this abatement effort will very likely result in an increase in use of chemical abatement methods.

C14-12

The increased use of chemical abatement methods has not been addressed in the DEIR/EIS. This increased use of chemical abatement methods and its effect on water quality should be addressed. Where appropriate, these chemicals should be included in the pesticides monitored on the DW Project islands that are regulated and required-unregulated in drinking water.

Impacts of Sediment Resuspension—The DEIR/EIS addresses the potential for sediment resuspension on the DW Project reservoir islands. Page 3C-6 states, "- runoff and resuspension episodes are relatively infrequent, persist for only a limited time, and therefore are not often detected in regular sampling programs." The DEIR/EIS further states, "The DW Project reservoir islands are expected to act as settling basins; therefore, suspended sediment concentrations are expected to be considerably lower in discharges than in Delta channels." Hydrodynamic modeling within the DW Project island reservoirs was apparently not performed. These statements dismiss the importance of sediment resuspension, may be incorrect and do not adequately address the issue of sediment resuspension. These issues are discussed below:

C14-13

• Contrary to the DEIR/EIS, the reservoirs are very likely to have significant levels of resuspended sediments (cf. Lawrence et al. 1991, "Wind-wave-induced suspension of mine tailings in disposal ponds - a case study." Canadian Journal of Civil Engineering, 18:1047-1053; and Rowan et al. 1992. "Estimating the Mud Deposition Boundary Depth in Lakes from Wave Theory." Canadian Journal of Fisheries and Aquatic Sciences 49:2490-2497). Sediment resuspension events are likely to be more frequent than asserted, as a result of the shallow depth and long fetch (open-water distance) of the island reservoirs. In addition, because of its low density, the high level of particulate organic matter in these soils will be susceptible to resuspension. Specifically, the sediment water interface flow velocities and shear stress should be modeled as per the citations above and the susceptibility of the reservoir island soils to resuspension (cf. Bengtsson and Hellstrom 1992.

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"Wind-induced Resuspension in a Small Shallow Lake." *Hydrobiologia* 241:163-172; Sfriso et al. 1991. "Field Resuspension of Sediments In the Venice Lagoon." *Environmental Technology Letters* 12:371-379).

- Internal nutrient loading (loading from the sediments) will be increased by resuspension of sediment and must be addressed. Even if the premise of the DEIR/EIS is correct and episodes of sediment resuspension will be infrequent at static pool elevations, their impact on nutrient release should be addressed. Addressing this issue is even more important with the higher levels of sediment resuspension that will probably occur.
- As water depth decreases, at a certain point the critical wave height ratio (the ratio of critical wave height to depth of water, where the critical wave height = 77% of the maximum wave height) will be exceeded for bottom sediments. As this occurs, shear stress exceeds cohesion of the material, and sediments return to suspension. This releases porewater constituents, produces a breakdown in the redox gradient in the now-disturbed sediments, solublizes sorbed and sulfide-precipitated constituents, and leads to a "spike" in both suspended and dissolved materials. This contrasts with the maintenance of high water quality, for either local or exported water.
- Increased algal productivity will result from the increase in release of nutrients from the sediments.
- If contaminants are present, sediment resuspension will result in their increased release from the sediments to the water column
- In addition to the increase in particulate organic carbon (POC) with resuspended sediments, DOC levels will be increased and exacerbate the DOC and THM problem.
- The resuspension of sediments can cause stress in zooplankton communities resulting in reduced health and productivity of this important component of the food web upon which the fisheries' productivity depends. This stress can be the result of depleted oxygen or the release of toxicants from the sediments (cf. Bledczki, 1991. "Zooplankton Under Stress Caused by Sediment Resuspension," Verhandlungen Internationale Vereinigung Limnologie) (see previous section on Pesticide Monitoring).

Sediment resuspension is potentially a serious threat to water quality. Therefore, this issue must be more completely addressed in the final EIR/EIS.

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Pore-Water Pumping—With the shallow depth of these reservoirs, each surface wave will likely result in a corresponding pressure wave moving across the bottom sediments. These pressure waves will force water through the pores between sediment particles, forcing this interstitial water, which is high in dissolved nutrients, metals and other compounds (see previous section on Pesticide Monitoring) out of the sediments into overlying waters. This pore-water pumping will effectively extract dissolved materials from the sediments, and subsequently exacerbate the release of nutrients and contaminants from the soils. This fact reinforces the need to monitor the water for regulated and required-unregulated pesticides and other contaminants suspected of being in the reservoir island soils. The DEIR/EIS fails to recognize this phenomenon and as a result under-estimates increased contamination in DW Project discharges. These impacts should be analyzed and included in the final EIR/EIS.

Water Supply and Water Project Operations

No Integration with Other Water Project Operations

The water supply and water project operation analyses presented in the DEIR/EIS were performed using a Delta operations model (DeltaSOS) that is not integrated with the operations of the SWP and the Central Valley Project (CVP), water projects which control much of the water flowing into and being exported from the Delta. While the DeltaSOS model uses as input the results from a model of SWP/CVP operations (DWRSIM), DeltaSOS does not have the ability to reoperate reservoirs either upstream or south of the Delta, coordinate DW Project discharge with demand south of the Delta, or evaluate the supply impacts of any change in Delta outflow requirements resulting from DW Project operations.

Without an integrated analysis of project operations, the potential impact of the proposed DW Project on SWP and CVP supplies cannot be determined; the amount and frequency of water estimated to be diverted and discharged, and the resulting impacts of those diversions and discharges, may be overstated; DW Project yield would be overestimated; and the potential benefits of holding water in upstream reservoirs and discharging DW Project water either for export or outflow instead cannot be determined. While the lack of full integration of the proposed DW Project with the SWP and CVP is described on page A1-2, potential errors in results due to this lack of integration are not disclosed.

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The accuracy of the water supply and operation analyses should be improved in the final EIR/EIS by incorporating a DW Project reservoir into an SWP/CVP operations model such as DWRSIM.

C14-15 cont'd

## Potential SWP/CVP Water Supply Impacts

Because of the way in which operation of the DW Project was modeled, there is no way to assess potential impacts of DW Project operations on the quantity of SWP and CVP water supplies. This is because SWP/CVP operations were modeled in one model and those operational results were fed into a second model to operate the DW Project, with no feedback to the original SWP/CVP operations. This lack of feedback or integration precludes any determination of potential impacts of the DW Project on SWP/CVP supplies. An example of a potential water supply impact is the X-2 outflow requirement, a portion of which is dependent on antecedent outflow. To the extent that DW Project diversions reduce outflow to a point where X-2 outflow requirements are increased in a succeeding month, the SWP and CVP could be required to release additional water to meet that requirement, which could result in a decrease in SWP/CVP supplies.

The potential impacts of the DW Project on SWP and CVP water supplies should be analyzed and included in the final EIR/EIS by incorporating a DW Project reservoir into an SWP/CVP operations model such as DWRSIM.

### **DW** Project Yield

Page 3A-9 of the DEIR/EIS states that the initial export values from DWRSIM have been adjusted by DeltaSOS to estimate additional exports that could be made without considering south-of-Delta demands and storage capacity. In addition to the hydrologic availability of inflow into the Delta, the availability of storage capacity and the variability of water demands on the system also affect DW Project yield determination. The opportunity to discharge stored DW Project water would depend on the demands and availability of storage south of the Delta, in addition to water quality requirements and export limits.

The supply analyses shown in Appendix A3 show years in which multiple diversion and discharge periods occurred during the same year. A review of these years shows that these occurrences follow a wet year. The fact that the previous year was wet increases the likelihood that other sources of water will be available (reservoir storage will be high) and that demand for DW Project water may be low. Therefore, the ability for these diversions to be stored or otherwise used is less certain than if they were available in periods following normal or dry years.

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In the final EIR/EIS, these impacts on yield should be corrected through more accurate modeling, as described in the section above, or addressed in the discussion of yield from the DW Project.

C14-17 cont'd

# Analysis of the Project Alternatives Under Cumulative Conditions

The water supply effects of the DW Project alternatives under cumulative conditions were evaluated in the same manner as the current level alternatives, except that the full SWP pumping capacity at Banks Pumping Plant (10,300 cfs) was assumed to be available in any month under cumulative conditions. The DEIR/EIS correctly states that pumping at full SWP capacity may require implementation of DWR's South Delta Project and a revised Corps permit. It does not, however, address the possibility of a through Delta facility, isolated facility, or other Delta solution as a potential future project for the cumulative impact analysis.

C14-18

Although the nature of such a project is speculative at this time, a Delta facility should at least be mentioned in the DEIR/EIS, even if only to state that a Delta facility was not analyzed because of the uncertainties regarding the project's design features and operations. In addition, the Los Vaqueros Reservoir Project was not addressed. This project should be included in the cumulative impact analysis.

# Channel Hydrodynamics

The DEIR/EIS states that channel hydrodynamics in the general vicinity of the operations facilities (siphons and pumps, including discharge pumps) will be "within the range" of normal tidal hydraulics (velocity and stage) during both storage pumping and discharge (pages 3B-17 and 18). "Within the range" includes zero velocity, as well as significant ebb or flood velocities. The magnitude of proposed discharge will certainly influence channel hydraulics very significantly, including potentially exacerbating null velocity conditions in a variety of locations in the Delta. For example, these conditions are the driving force behind the barriers included in DWR's South Delta Project, which is designed to rectify or offset certain tidal and channel flow conditions which impact water quality.

C14-19

The potential impacts of the DW Project on channel hydrodynamics, should be analyzed and discussed in the final EIR/EIS. A cumulative impact analysis on channel hydrodynamics which includes DWR's South Delta Project should also be discussed in the final EIR/EIS.

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## Levee Stability

Metropolitan is concerned about the stability of levees in the Delta. Failure of western Delta island levees would threaten both the supply and quality of SWP supplies. The DEIR/EIS states that the perimeter levees of the DW reservoir islands would be improved to bear the stresses and erosion potential of interior island water storage and drawdown. In addition, the DW Project proposes to maintain levee reliability through an ongoing monitoring and maintenance program. Metropolitan supports these measures.

However, Metropolitan is concerned about the levees on the DW islands, which were designed to be wet on one side and dry on the other. The final EIR/EIS should more thoroughly address levee slope stability in the situation where water is on both sides of the levee, during both rapid drawdown of DW Project storage and during seismic events.

**Specific Comments** 

<u>DW Project Objectives</u>—The DEIR/EIS states on pages 2-1 and 2-2 that DW Project intentions are to: augment water supply for exports, increase the supply of high-quality water and freshwater releases for outflow from the Delta, and increase water available to meet environmental flow needs (fishery, wetlands, Suisun Marsh, and estuarine salinity). However, analyses of operations of the DW Project under the various alternatives only details increasing supply for exports and neglects the other stated project objectives. If these truly are DW Project objectives, the final EIR/EIS should include analyses identifying potential impacts and benefits of DW Project supplies being used for these other purposes.

<u>Delta Export Pumping</u>—The DEIR/EIS identifies on pages 2-5 and 2-6 the various restrictions on Delta export pumping. The final EIR/EIS should identify that further restrictions on export pumping, including take limits, may be imposed under both State and federal Endangered Species Acts, thus impacting DW Project discharge operations.

<u>Discharges under Alternative 1</u>--The DEIR/EIS states on page 2-7 that under Alternative 1, discharges would be treated as additions to total Delta inflow for the purposes of estimating the increased allowable "percent inflow" export limits. The validity of this assumption varies from month to month depending on what, if any, standard or flow requirement is controlling inflow to the Delta (e.g., upstream flow requirement, water

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quality standard, or Delta outflow requirement). Depending on the controlling standard/requirement, DW Project discharges may or may not provide the same outflow benefit as Delta inflow. The final EIR/EIS should address the limitations of this assumption.

C14-23

C14-24

Export Pumping of DW Discharges—In the final EIR/EIS, the following corrections should be made:

- Page 3A-9, fifth paragraph, last sentence, should be corrected to read, "Only export pumping capacity that could not have been used by available to the CVP and SWP because of within the 1995 WQCP export limits was simulated to be available for export pumping (wheeling) of DW discharges."
- Page 3A-15, second full paragraph, second sentence, should be corrected to read, "DW discharge for export would occur during months when SWP and CVP export pumping is <u>not</u> limited by the <u>export-as-a-percent-of-inflow requirement contained</u> in the 1995 WQCP-objectives."
- Table 3A-4, the title should be corrected to read "Monthly Percentiles for DeltaSOS Simulations for the No-Project Alternative under Cumulative Conditions"

C14-25

<u>DWRSIM</u>-On page A1-1, the second paragraph, DWRSIM is described as "the Delta operations model used by California Department of Water Resources (DWR)." DWRSIM is actually the reservoir operations planning model used by DWR. Other DWR models, including hydrodynamic models like DWRDSM, are used to model the Delta. This should be corrected in the final EIR/EIS.

C14-26

Streams Modeled in DWRSIM--On page A1-3, the first sentence of the third paragraph reads, "Figure A1-1 shows the major streams and facilities that are included in the DWRSIM model." Figure A1-1 includes the Klamath, Eel, Russian, Salinas, Owens, Kern, Kaweah, and Tule Rivers, none of which are included in DWRSIM. Please make this correction in the final EIR/EIS.

C14-27

Minimum Pumping during Cutbacks—It is stated in the second paragraph on page A3-5 that, "DeltaSOS simulations for DW Project impact assessment used a minimum export pumping value of 1,500 cfs." This value disagrees with the value shown in Table A3-2 of 2,000 cfs. Either the text or the table needs to be corrected in the final EIR/EIS. If the model simulations were done using 2,000 cfs, but the correct value is 1,500 cfs, the DeltaSOS simulations should be rerun.

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Monthly Percentile Tables for the No-Project Alternative—Page A3-8, last paragraph, second sentence should be corrected to read, "Although there was at least one year with some available water in each calendar year month, most of the available water was simulated for November-March."

C14-28

Monthly Percentile Tables for the No-Project Alternative under Cumulative Condition-Page A3-14, second paragraph, second sentence should be corrected to read, "For example, in October the total exports for No-Project Alternative cumulative conditions (bottom panel on page 5 of Table A3-18) were simulated to be greater than 11,921 cfs for about 30% of the years, and full SWP and CVP pumping capacity (11,900 14,900 cfs combined pumping) was used in at least 10% of the years."

C14-29

Adjustments to DWRSIM Delta Exports — The total values in the last column of Table A3-4a (Initial DWRSIM Exports in TAF) added to those in the last column of Table A3-4b (DeltaSOS Adjustments) do not add up to the last column on Table A3-4c (DeltaSOS Adjusted Exports). It appears that one or more tables is incorrect and should be corrected.

C14-30

## Fishery Resources

# Discharges Under Alternative 1

The scientific basis for the December 15, 1994 Accord attributes much of the value of Delta outflow to the pattern of Delta inflow and associated biological functions. These biological functions include the transport of eggs and larvae of listed, special status, and economically important species such as Delta smelt, splittail, longfin smelt, and striped bass. Delta inflow is also an important factor in establishing homing cues for migrating adult salmon and for outmigration, and imprinting cues for outmigrating juvenile salmon. Delta "inflow" from islands could impair, not contribute to, these important biological functions. This should be addressed in the final EIR/EIS.

C14-31

## Salmon Smolt Survival

The DEIR/EIS relies on the Salmon Smolt Survival Index (SSSI) model developed by the US Fish and Wildlife Service almost exclusively in its analysis of impacts to migrating juvenile salmon near or through the Delta (Chapter 3F). Although often cited, this model has been questioned extensively in recent years. The SSSI model relies on recapture in the Chipps Island Trawl of tagged salmon from various release groups in and upstream of the Delta under a variety of conditions and over several years, and imputes a "survival index" based on the recapture rate and the time fished by the trawl.

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The problematic elements include: the lack of any consideration of tidal influences at or subsequent to release, invalid statistical assumptions, extremely low recapture rates in the trawl, pseudoreplication, insufficient sube-groups to compute a meaningful variance for the recapture rate, lack of sufficient representative water years for San Joaquin releases, and a variety of other problems. The model is presently undergoing a major revision effort which suggests that the use of it in DW Project analyses renders questionable outcomes. The final EIR/EIS should discuss the nature and extent of such issues and provide alternative analyses or interpretations.

**Splittail** 

The DEIR/EIS relies on incomplete and outdated information on splittail in its analysis of the status of this species and project impacts (Chapter 3F). Readily available information on splittail spawning range and distribution of young-of-the-year was apparently not considered in the preparation of this document. For example, beach seine data collected annually since 1976 by the US Fish and Wildlife Service (primarily on the Sacramento River from Redding to the Delta, but including major Delta tributaries) shows a very robust population of this species throughout much of its historic range. The final EIR/EIS should include this and other relevant data on the status and distribution of splittail and should consider it in determining the likely project impacts on splittail.

**Delta Smelt** 

In Chapter 3F (pages 3F-6 and 3F-22) and in Appendix F2, the DEIR/EIS relies almost exclusively on neutral particle tracking analysis to project the distribution and abundance of early life stages of Delta smelt in the vicinity of project pumps and siphons, and in "mortality" analyses for the assessments of project impacts. While it is not unreasonable to assume that early life stages of Delta smelt and other small fishes are limited in their swimming abilities, pulse "flushing" flow tests in the spring of 1994 demonstrated that early juvenile Delta smelt do *not* "go with the flow" and are apparently capable of volitional behavior comparatively early in their life cycle. The final EIR/EIS should take these and other readily available data into account, and include information relating to volitional fish behavior in the analysis of expected project impacts.

Fish Screening

The DEIR/EIS provides some detail on provisions for screening pumps and siphons to be used to bring water onto the reservoir and habitat islands. The screening facilities proposed are not appropriate for this application, however. Channel hydraulics will not be conducive to "encourage" screened fish to move away from the vicinity of the intake facilities over much of the intake cycle, due in large measure to tidal influences on

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channel hydraulics and the pumping/siphoning rates proposed. Screening criteria, particularly approach velocity criteria, are based on performance testing which focuses on fatigue rates for various species and life stages. If some means to encourage fish to move away from screening facilities is not provided, the scientific basis for approach velocity criteria is violated and the criteria become biologically invalid. In the final EIR/EIS, alternative approaches to screening must be explored, with bypass or salvage options included. Alternative approaches must all consider factors such as the attraction of predators and interruption /alteration of fish migration.

C14-35 cont'd

The provision for screen maintenance and cleaning is inadequate. Manual cleaning cannot provide sufficient assurances against "hot spot" formation, and is not sufficiently reliable for a facility of this diversion capacity. Assuming the fish lingering problem can be solved, the cylindrical screens proposed for the DW Project should be fitted with readily available air-burst or internal spray-bar cleaning systems. These systems should be fully automated, and the final EIR/EIS should account for the potential tendency for cleaned debris to accumulate near diversion facilities.

### Egg and Larvae Entrainment

The DEIR/EIS treated entrainment of very small organisms, such as fish eggs and larvae, as an unavoidable adverse consequence, and provided no mitigation for this expected impact (Chapter 3F, page 3F-12). The vast majority of larvae and eggs, whether siphoned or pumped, can be expected to survive entrainment. Growth of entrained eggs and larvae (including species which are listed or proposed for listing under State and federal endangered species legislation) in either reservoir or habitat islands could be rapid due to a plentiful nutrient base and very low predator populations, larger fish having been excluded by screens. Upon draining of either reservoir or habitat islands, however, survival prospects can be expected to be diminished greatly due to predation. A significant number of fish, including listed species, will likely remain within the island to become stranded or concentrated in any open water areas. At a minimum, options for salvage operations should be analyzed in the final EIR/EIS for feasibility, and the relative project impacts disclosed.

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#### **Other Comments**

### No Project Alternative

The "No Project Alternative" as described in the DEIR/EIS (p. 3-4 and elsewhere) suggests that agriculture of greater intensity than currently exists will occur if the DW Project does not. The "No Project Alternative" should be a continuation of existing practices unless changes in existing practices absent the project can be supported with thorough and convincing economic and environmental analyses. The final EIR/EIS should include a "No Project Alternative" that reflects a continuation of existing land use practices, including the existing intensity and style of agricultural activities, or should present convincing arguments why a different future "no project" condition is more reasonable.

We appreciate the opportunity to provide input to your planning process. When available, please provide me with a copy of the final EIR/EIS, the mitigation monitoring and reporting plan, and the notice of determination. If we can be of further assistance, please contact me at (213) 217-6242 or Dirk Marks at (213) 217-6039.

Very truly yours,

Laura J. Simonek

Senior Environmental Specialist

MEM/NC:arb

Attachment

cc: Byron Buck, California Urban Water Agencies
David Kennedy, Department of Water Resources
Steve Macaulay, State Water Contractors

### DETAILED WATER QUALITY COMMENTS ON DELTA WETLANDS PROJECT EIR/EIS

Prepared by Sr. Res. Chem. S. W. Krasner, Water Quality Division 11/30/95

#### INTRODUCTION

As a first priority, the accuracy of the analytical data developed during water quality experiments on the DW Project must be assessed before engineering decisions can be based on these data. Unfortunately, the DW Project utilized a testing procedure for trihalomethane formation potential (THMFP) that has been demonstrated to be inaccurate in waters containing more than 10 mg/L of dissolved organic carbon (DOC). More importantly, the DW Project contracted out water quality analyses (including THMFP testing) to laboratories that did not maintain good laboratory practices. Fortunately during the latter course of these studies, these problems were identified and split samples (for some aspects of the study) were run by Metropolitan's Water Quality Laboratory. However, at least during interim analyses of the data, the DW Project relied on assessing all of the data for the study in spite of quality control (QC) problems with the contracting laboratories. Of more concern is the accuracy of data generated by DW Project contract laboratories for earlier study samples that were not split with Metropolitan. To resolve that issue, Metropolitan did some experiments to try to reproduce conditions studied earlier by the DW Project to estimate the true results of those experiments.

The comments on the water quality aspects of the DW Project will be divided into four sections: (1) demonstration of the inaccuracy of the THMFP method used by the DW Project, (2) documentation of the QC problems experienced by the DW Project contracting laboratories, (3) presentation of water quality data generated by Metropolitan on split DW Project samples, and (4) discussion of a Metropolitan experiment to estimate the true results of DW Project experiments in which samples were not split with Metropolitan. Throughout these sections, an attempt will be made to interpret the accurate water quality data in terms of environmental impact issues in the Sacramento-San Joaquin Delta (Delta).

### THMFP METHODOLOGY

The DW Project utilized a THMFP test that had been in use by the Department of Water Resources (DWR) at that time. The types of samples that are typically analyzed by DWR span a much wider range of DOC levels than is normally encountered by laboratories doing THMFP testing. DWR had developed a methodology that they believed could accommodate that wide range of DOC levels. Subsequently, tests were done that demonstrated the inaccuracy of the DWR method for water containing more than 10 mg/L DOC.

The DWR method used a constant chlorine dose (~120-125 mg/L) for their THMFP testing. This test was designed to meet the chlorine demand of all samples (low or high in DOC). Alternatively, Metropolitan tests all THMFP samples on a reactivity basis (utilizing the DOC and ammonia-nitrogen [NH<sub>3</sub>-N] data), where:

# $Cl_2$ dose = 3 x DOC + 7.6 x NH<sub>3</sub>-N (on a mg/L basis)

The portion of the chlorine dose based upon the DOC content of the water was based upon experiments performed by Professor Gary Amy on samples collected in the Delta (including high-DOC agricultural drains) (G.L. Amy et al., "Evaluation of THM Precursor Contributions From Agricultural Drains," *Jour. AWWA*, 82:1:57, Jan. 1990). The additional chlorine was added to breakpoint chlorinate any raw water ammonia in the samples. THMs will not be formed if chlorine and ammonia are combined (i.e., as chloramines), so THMFP testing requires that ammonia (and other inorganic sources of chlorine demand) must be properly removed or oxidized.

Research on the effect of chlorine dose indicates that a low dose that achieves approximately a 3-mg/L residual at the end of the testing period will measure the more "readily-forming" THM precursors, whereas a high dose with a very large chlorine residual will also result in the measurement of the more "recalcitrant" THM precursors (J.M. Symons et al., "Measurement of THM Precursor Concentrations Revisited: The Effect of Bromide Ion," Jour. AWWA, 85:1:51, Jan. 1993). If a chlorine residual is not present at the end of the THMFP test, then the sample was underdosed and the THMFP level will be underestimated. Figure 5 from the Symons et al. paper in the Jour. AWWA (see attachment) shows the influence of the free available chlorine (FAC) residual on precursor measurement in California State Project water (SPW). When the SPW was underdosed, the total THM value obtained after a 7-day incubation (TTHM7) was 65 percent of the TTHM7 value when dosed (on a reactivity basis) to yield a 3-mg/L residual. Alternatively, when a 120-mg/L chlorine dose was used (as is done in the DWR method), the extremely high chlorine residual resulted in the production of 40 percent more TTHM7 than measured for the 3-mg/L chlorine dose. A more appropriate term for the DWR method (in low-to-moderate DOC waters) is a "maximum" THMFP test.

In high-DOC waters, however, the DWR method does not yield maximum THMFP results (see DWR Figure 16 attached). In this DWR experiment, for a State Water project (SWP) sample with low DOC (2.7 mg/L), the THMFP (as indicated by the level of THMFP carbon [TFPC]) was approximately the same for a 62.5- and a 125-mg/L chlorine dose, which implies that the 125-mg/L dose did achieve a maximum THMFP. However, the 125-mg/L chlorine dose did not achieve a maximum THMFP for the high-DOC agricultural drain samples. Empire Tract (DOC = 34 mg/L) and Bouldin #2 (DOC = 62 mg/L) achieved THMFP values with a 125-mg/L chlorine dose that were 73 and 48 percent, respectively, of their maximum THMFP values (based upon the 1250-mg/L chlorine doses). What is essential is that different samples-regardless of the DOC level--be chlorinated in a manner so that results between samples can be appropriately compared.

To better refine the DWR methodology, tests were performed at Metropolitan on a high-DOC agricultural drain from the Mandeville tract in the Delta (S.W. Krasner & M.J. Sclimenti, "Characterization of Natural Organic Matter: Disinfection By-Product Analysis" in Workshop Proceedings on Natural Organic Matter in Drinking Water: Origin, Characterization, and Removal, pp. 105-113, AWWA Research Foundation & AWWA, Denver,

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greater than the SDS THM in the same water. It would be less only in the unlikely event that the FAC levels in the distribution system itself were greater than those chosen for the THMFP test. Some utilities have developed correlations between the THMPF and SDS THM tests for their locations. If water quality and treatment conditions are fairly constant, this may be possible, but any correlation would be site-specific.

Because the incubation conditions of the THMFP test may be varied to suit local conditions, standardizing more than an approach is not possible. The nineteenth edition of Standard Methods' is considering a "standard" THMFP test (like method 5710B, but having the FAC residual fixed) to allow comparisons of precursors from location to location followed by a general outline of the "variable" THMFP test.

#### Objective

Because Br has a considerable impact on THM speciation, the purpose of this article is to highlight this impact on both the THMFP and SDS tests, particularly on their capability to predict THM species.

#### Methodology

Experimental procedures. This was a two-phase study. Phase one was conducted in the laboratory, where variables could easily be changed over a wide range, and phase two was conducted in the field, using real water samples to confirm the laboratory tests. During the laboratory phase, a commercial humic acid (AHA)\* was used as the precursor material. Unpublished data collected several years ago in the University of Houston laboratories confirmed the work of others that AHA is quite different from natural aquatic humus. Nevertheless, upon chlorination it produces THMs at a rate similar to that for natural samples, and so it is a useful laboratory model. Furthermore, in this study, as noted previously, all of the laboratory results were confirmed in the field.

The stock AHA solution was prepared by weighing (to the nearest 0.1 mg) an amount of material that would produce a concentration in the stock solution of 1 mg/mL. The pH of the stock solution was then increased to about 10 with NaOH, and the solution was stirred for 24 h at room temperature (about 22°C). The stock solution was then filtered through a 0.45-um-pore-diameter filter and stored at 4°C. All laboratory studies were performed on dilutions of this AHA stock solution in deionized water. In the laboratory study, precursor removal was simulated by diluting the solution with deionized water prior to free chlorination. Results were confirmed in the field at a demonstration-scale granular activated carbon (GAC) plant.

Free chlorine was provided using a stock hypochlorite solution in the laboratory and in the field samples. The laboratory samples were unbuffered, but the pH was measured at the beginning and end of each incubation. The pH changes during incubation were generally less than one pH unit. Most of the field samples were buffered with a borate buffer as described by Koch et al.7 The pH changes in the laboratory did not interfere with interpretation of the data, because similar results were obtained from the buffered field studies. Free chlorine dosages and residuals were measured in the laboratory by method 4500-Cl D2 and in the field by method 4500-Cl G.2

Data handling. The primary independent variable in this study was the molar ratio of the Br to the FAC concentration. because data show this ratio strongly affects THM formation and bromine substitution. The concentrations of both the Br and FAC change during the THM formation reaction. The Br is oxidized by the FAC, and the resulting hypobromous acid causes the substitution of bromine into THMs as well as into haloacetic acids and other disinfection by-products (DBPs). The hypobromous acid also acts as an oxidant, resulting in some recycling of the Br. In this study, the calculations of bromine uptake neglected all of the non-THM DBPs and only focused on the regulated THMs. Similar studies in the future that include the other DBPs would be quite interesting.

The FAC concentration ([Cl\*]) also changes as it oxidizes organic matter and reduced inorganic ions like sulfide, reacts with ammonia, and causes the substitution of chlorine into THMs and other DBPs. In this study, in the absence of any inorganic chlorine demand, the substitution of chlorine into the THMs was typically less than or equal to about 5 percent of the chlorine demand.

To treat data in this study, the following approach was used. Because the key variable, the Br/Cl\* molar ratio, could not be calculated at every moment during the incubation, the initial Br concentration ([initial Br]) was chosen to be the numerator of the ratio. This concentration relates to the potential for bromine substitution into the THMs.

The laboratory and field samples tested contained neither ammonia nor reduced inorganic materials such as sulfide, ferrous iron, and so forth. Thus, the change in FAC concentration after one day of contact time was fairly slow and gradual throughout the remainder of the incubation period (Figure 1). Using the average FAC concentration during the incubation, ([initial Cl\*] + [final Cl\*])/2 = [average Cl\*] was representative of the FAC concentration influencing the THM formation reaction during incubation.

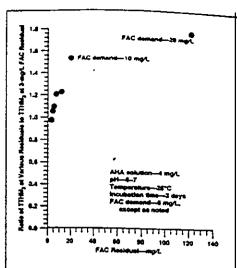
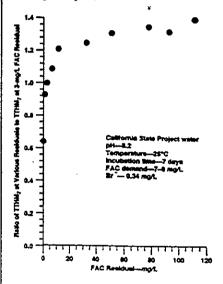


Figure 2. Influence of FAC residual on precursor measurement (no Br., laboratory samples)



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Figure 5. Influence of FAC residual on precursor measurement (Br present)

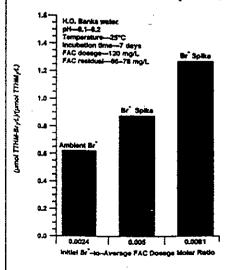
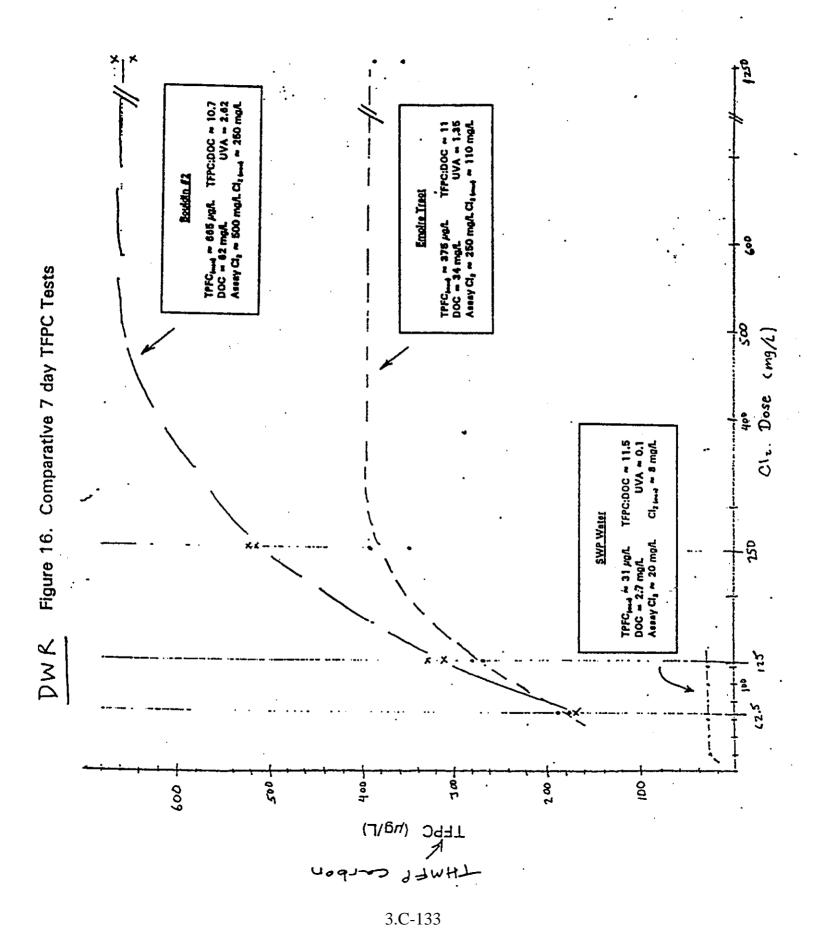


Figure 8. Influence of initial Br-to-average FAC dosage molar ratio on bromine substitution in THMs (constant FAC dosage)

<sup>\*</sup>Aldrich Chemical Co., Milwaukee, Wis.



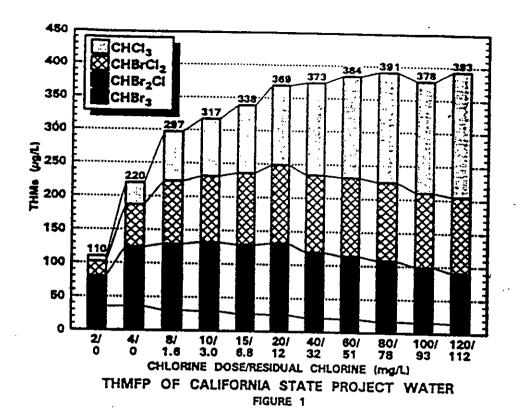
Colo., 1994). This sample had 48 mg/L DOC, 0.34 mg/L bromide, and 2.0 mg/L  $NH_3$ -N. Chlorination on a reactivity basis required a 160-mg/L dose. A 2.2-mg/L residual was attained; a positive residual would not have been realized if the chlorine dose had been based on DOC alone. A THMFP of 4422  $\mu$ g/L (36.5  $\mu$ mol/L) was produced under these conditions. When a 1600-mg/L chlorine dose was applied, the THMFP went up to 7949  $\mu$ g/L (65.9  $\mu$ mol/L). If the latter test represents a maximum THMFP, the former experiment only yielded 55 percent of the maximum.

As an alternative to chlorinating a high-DOC water with an extremely high dose, dilution of the Mandeville agricultural drainage before chlorination was attempted. Samples were diluted with organic-free water spiked with 0.34 mg/L bromide in order to evaluate the effect of the chlorine-to-DOC ratio while maintaining a constant bromide-to-chlorine ratio. When diluted samples were chlorinated based on the DOC level (i.e., 3:1, in addition to meeting the ammonia demand), the THMFP divided by the dilution factor was consistently between 35 and 38 µmol/L (see Figure 2 of Krasner & Sclimenti paper attached). Alternatively, use of a constant chlorine dose--in this case, 120 mg/L--yielded THMFPs of 40 to 53 µmol/L after correcting for dilution, with the more diluted samples approaching, but not reaching, the maximum THMFP value obtained with a 1600-mg/L dose (i.e., 66 µmol/L). These data and other tests in a wide variety of Delta waters suggest that the chlorine-to-DOC ratio is significant in THMFP testing if the precursor levels of different samples are to be compared.

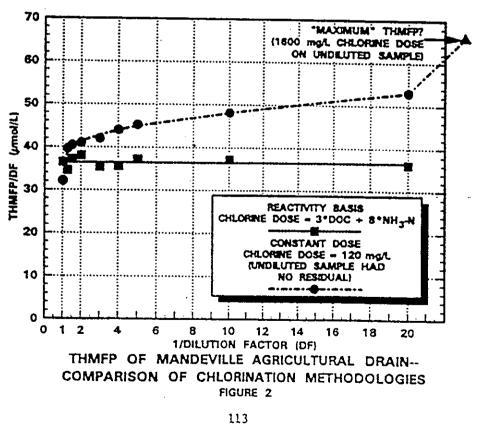
As a result of experiments at DWR and Metropolitan, DWR's THMFP test has been modified in that samples with more than 10 mg/L of DOC need to be diluted before chlorination with a 120 mg/L dose. In this manner, all samples are now chlorinated by DWR and its contracting laboratories with a Cl<sub>2</sub>:DOC ratio of 12:1 or greater yielding maximum THMFP results for all samples.

An additional modification to the DWR THMFP method is that all samples are now chlorinated at a constant pH (~8) as is done in the Metropolitan method. Stevens and coworkers ("Formation and Control of Non-Trihalomethane Disinfection By-products," Jour. AWWA, 81:8:54, Aug. 1989) have demonstrated that chlorination pH significantly affects THM formation. For example, these researchers chlorinated raw Ohio River water for up to 144 h at pH 5, 7, and 9.4. After 144 h (6 days), the THM formation at pH 5 and pH 7 was approximately 26 and 73 percent, respectively, of the THM formation at pH 9.4 in the raw Ohio River water samples (see Figure 3 of Stevens et al. paper attached). In Standard Methods for the Examination of Water and Wastewater (17th and 18th editions, American Public Health Association, Washington, D.C., 1989 and 1992, respectively), it is recommended that THMFP tests be performed at a pH of 7.0 or 9.2.

Because the DW Project used the older DWR THMFP method (120 mg/L chlorine dose for all samples regardless of DOC level, as well as no pH control of samples), the DW Project THMFP data must be analyzed in light of what we know today.







S.W. Krasner & M.J. Sclimenti, 1994

This water quality was considered to be typical of hard waters.

Lime-soda ash softening was carried out according to the processes described by Sawyer and McCarty. From was used as a coagulant in the form of technical-grade  $Fe_2(SO_4)_3 \cdot 3H_2O$ , which is approximately 68 percent  $Fe_2(SO_4)_3$ . The proper dosage of coagulant in addition to the calculated lime and soda ash dosages was determined by jar testing. Jar testing also predicted the dosage of sodium hydroxide (NaOH) required to achieve pH 10.8  $\pm$  0.1, as required for precipitation of Mg(OH)<sub>2</sub>.

Adjustment of pH after softening was not by the usual carbon dioxide recarbonation but was accomplished by the addition of HCl. The HCl dosage was determined at the bench by acid titration of the settled and softened water.

Finally, conventional pH (neutral) coagulation employing alum was studied in run 3A.

Tables 1, 2, and 3 present mean operational data for these three pilot-plant runs. The data indicate good turbidity control, softening where applicable, and achievement of the desired pH range.

# Chlorination experiments

Raw and filtered water samples were collected from pilot-plant runs 1A, 2A, and 3A in 30- to 40-L quantities.

Aliquots of each sample were buffered to three different pH values (5, 7, and 9.4) by first placing 80 mL of a buffer solution (a combination of 0.25 M borate and 0.25 M phosphate) into a 10-L bottle, then filling to the 4-L mark with either raw or filtered water. Either 1.0 N NaOH or 1.0 N H<sub>2</sub>SO<sub>4</sub> was added to the buffered sample, which was stirred and monitored with a pH meter until the desired pH was reached. Each sample was then transferred to a 1-gal bottle until needed for further work.

The chlorine demand of each sample, as originally collected, was determined by a proposed standard method9 for the determination of THM formation potential. The required amounts of chlorine, as determined previously, were then measured into 1-L bottles, using one bottle per experimental time period. Three experimental chlorination time periods were chosen for most of this work: 4 h, two to four days (dictated by convenience), and six to seven days. This required a total of six bottles per experimental time period: three bottles containing buffered raw water chlorinated at three different pH values and three corresponding bottles for filtered water. Chlorination reactions were allowed to proceed at 25°C until the reaction was quenched at the end of the given time periods.

Two procedures were used for stopping the chlorination reaction after the various time periods. Samples to be analyzed

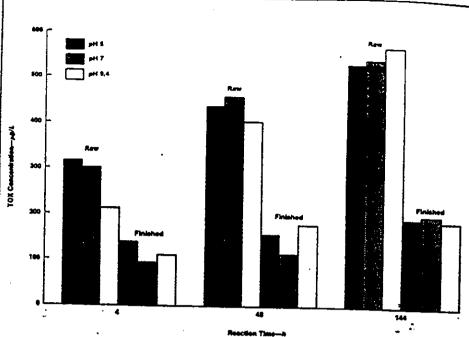


Figure 2. Variation of TOX with pH and time

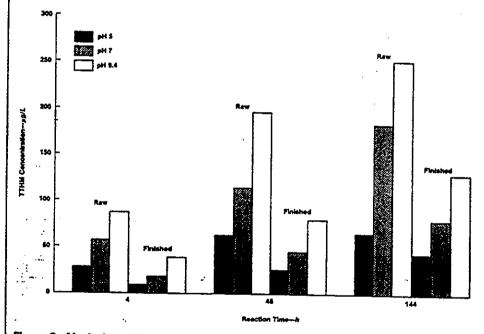


Figure 3. Variation of TTHMs with pH and time

for dihaloacetonitriles (DHANs), chloropicrin (CP), 1,1,1-trichloropropanone (111-TCP), and trichloroacetonitrile (TCAN) were each poured into a 40-mL glass vial that already contained about three drops of ammonium chloride solution (5 g NH<sub>4</sub>Cl/100 mL); the vial was then filled with sample, shaken, and neutralized to pH 7 by adding either 1.0 NH2SO4 or 1.0 NNaOH. For samples to be analyzed for TOX and the other DBPs, the chlorine residual remaining in the I-L bottle was determined and was then destroyed by adding a slight excess of sodium sulfite; the pH was adjusted to between 5 and 6. Samples for

THMs and chloral hydrate (CH) were then placed in separate vials, samples for TOX and haloacetic acids (HAA) were poured into separate 250-mL bottles, and the pH of the TOX sample was further reduced to 2 by adding nitric acid. All samples were stored at 4-6°C until analysis.

#### Effects of pH and time

Only the data from run 1A are presented because the same trends were observed for and general conclusions apply to the other two runs.

Total organic halogen. Concentrations of TOX were reasonably independent of

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cont'd

# QC PROBLEMS WITH DW Project CONTRACTING LABORATORIES

### THMFP Testing

Filtration of samples: Part of DWR's THMFP testing protocol (past and present) is to filter the water through a 0.45-µ filter to remove turbidity prior to chlorination. The DW Project contracting laboratory doing THMFP tests in 1992 did not perform this step. Dissolved organic matter (as measured by DOC) will pass through a 0.45 µ filter. In many waters (including SPW), 90-95 percent of the organic matter is in the dissolved phase (D.M. Owen et al., Characterization of Natural Organic Matter and Its Relationship to Treatability, AWWA Research Foundation & AWWA, Denver, Colo., 1993). If a sample, however, contains suspended matter that presents a chlorine demand, not filtering the samples will result in a decrease in chlorine that is available to react with THM precursors.

More importantly, samples collected during a DW Project vegetative biomass experiment (1992) contained hydrogen sulfide (from the decomposition of sulfur-containing proteins), which has a high chlorine demand. Partial oxidation of hydrogen sulfide requires 2.1 mg/L of chlorine for each mg/L of hydrogen sulfide, whereas complete oxidation requires 8.5 mg/L of chlorine per mg/L of hydrogen sulfide (G.C. White, *The Handbook of Chlorination and Alternative Disinfectants*, 3rd ed., Van Nostrand Reinhold, New York, 1992). Because Metropolitan filtered split DW Project samples through a 0.45 μ filter to remove turbidity prior to chlorination, the hydrogen sulfide was removed during the vacuum filtration step. This was not the case for the DW Project contracting laboratory, which resulted in an underdosing of chlorine in those THMFP tests.

Calibration of chlorine: Standard laboratory practice is to calibrate the chlorine solution used in THMFP testing to accurately determine the dose. This is particularly important because chlorine solutions decompose over time. To minimize the decomposition of the chlorine solution, it should be kept refrigerated. Gordon and co-workers (Minimizing Chlorate Ion Formation in Drinking Water When Hypochlorite Ion is the Chlorinating Agent, AWWA Research Foundation & AWWA, Denver, Colo., 1995) found that decreasing the temperature from 25 to 15°C decreases the rate of decomposition of chlorine bleach by a factor of more than 3.8.

Metropolitan stores chlorine bleach solutions used for THMFP testing at ~4°C, whereas the DW Project contracting laboratory stored their bleach at room temperature (~20°C). Metropolitan periodically recalibrates their chlorine solution, whereas the DW Project contracting laboratory did not. Thus, because the DW Project contracting laboratory did not properly store their chlorine solution and did not calibrate it, it is very likely that they underdosed THMFP samples.

Measurement of chlorine residual: It is standard laboratory practice to measure the chlorine residual at the end of the THMFP test. A THMFP test must have a positive residual at the end of the test to have a valid result. If the samples does not have a residual, then the sample was underdosed and the THMFP value will be low due to insufficient chlorination. The

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use of a preset chlorine dose (e.g., 120 mg/L) that is assumed to be adequate to handle most samples can fail to yield a positive residual for all samples. The DW Project contracting laboratory had not originally measured chlorine residuals in these studies. When they started to check for chlorine residuals, they found that a positive residual was not present in some of the DW Project samples. Probably a combination of the reduced strength of the uncalibrated bleach solution stored at room temperature and the presence of a high chlorine demand (e.g., from the hydrogen sulfide in unfiltered vegetative biomass experiment samples) resulted in an insufficient chlorine dose and an underestimation of the THMFP of some DW Project samples.

THMFP pH: The DW Project THMFP samples were not pH adjusted as is required in Standard Methods. For some chlorinated DW Project samples, the DW Project contracting laboratory measured a pH ~6.5. As shown by Stevens and co-workers, an acidic pH produces significantly less THMs than at a neutral or basic pH (as run by Metropolitan).

Inconsistent THMFP results: Because the DW Project contracting laboratory did not use a standardized THMFP protocol with a calibrated chlorine solution, erratic results were generated by this laboratory. For example, during the vegetative biomass experiments, the DOC of samples (according to the DW Project contracting laboratory) ranged from 20 to 42 mg/L in barrel 3 (Metropolitan DOC measurements for these samples varied from 30 to 40 mg/L). Metropolitan's THMFP testing yielded values from 2588 to 2932 µg/L, whereas the DW Project contracting laboratory reported THMFP values of 52 to 8154 µg/L (R.T. Brown, "Water Quality Experiments on Potential Sources of Dissolved Organics and THM Precursors for the Delta Wetlands Project," draft memorandum, Jones & Stokes Associates, Inc., Sacramento, Calif., May 28, 1992). The variation in the reported DOC levels (a factor of two according to the DW Project contracting laboratory) can in no way explain the enormous variation in the DW Project contracting laboratory THMFP data (a factor of over 150).

Other Water Quality Measurements

Bromide and chloride: The mass ratio of bromide to chloride in seawater is 0.0034 (H.U. Sverdrup et al., *The Oceans*, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1942). Krasner and co-workers examined the bromide-to-chloride ratio in Delta sampling stations where the chloride was at or below 200 mg/L and the electroconductivity was less than 900 µmho/cm ("Quality Degradation: Implications for DBP Formation," *Jour. AWWA*, 86:6:34, Jun. 1994). A relationship with a correlation coefficient of 0.982 was obtained:

$$Br^- = 0.00327 \times Cl^- - 0.00496$$

This equation is relatively close to the relationship of bromide and chloride in pure seawater. It is clear from this equation that seawater is by far the major source of salinity in the Delta.

In the DW Project vegetative biomass experiment, Metropolitan found the ratio of bromide to chloride to vary from 0.0026 to 0.0032 over the course of this study, whereas the DW Project contracting laboratory found this ratio to vary from 0.0022 to 0.0051. The DW Project contracting laboratory reported for the February 27 and March 10, 1992 samplings (of barrel 1)

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that the chloride decreased from 180 to 61 mg/L (a 66-percent decrease) and the bromide dropped from 0.39 to 0.31 mg/L (a 21-percent decrease). The DW Project explanation for these data was that rain during this period may have diluted the salinity. But these data suggest a significant dilution of the samples with bromide-laden water. Yet the Metropolitan data showed that the chloride and bromide remained relatively constant during this time period (i.e., 152-154 and 0.4-0.49 mg/L, respectively).

Anion/cation balancing: The anion and cation sums, when expressed as milliequivalents per liter (meq/L), must balance because all potable waters are electrically neutral. According to Standard Methods, for an anion sum of 3.0 to 10.0 meq/L, the acceptable difference is  $\pm 2$  percent. For example, on March 10, 1992, the DW Project contracting laboratory reported that the chloride had drastically dropped (see discussion above). On that day, bicarbonate was not measured. During the sampling on April 14th, bicarbonate was measured at 120 mg/L. Because the conductivity on those two days was quite similar (748 and 773  $\mu$ S/cm), it is likely that a similar bicarbonate level was present in March. Utilizing that bicarbonate value, the cation/anion balance on March 10th was 4.1 meq/L anions versus 6.7 meq/L cations, a 24 percent difference. Standard laboratory practice requires that the anion and cation measurements should have been redone to resolve this discrepancy. If the chloride value measured at Metropolitan on March 10th (which was consistent with the seawater ratio to bromide) is used in the anion sum, that value becomes 6.7 meq/L, which then exactly matches the cation balance.

# Metropolitan RESULTS ON DW Project SAMPLES

# Vegetative Biomass Experiments

To evaluate the yield of disinfection by-product (DBP) precursors from plant biomass decomposition over time, an experiment was performed (R.T. Brown, 1992; Krasner et al., 1994). The experimental protocol involved the following parameters:

- Vegetation biomass samples (dominated by smartweed, watergrass, and swamp timothy) were collected from demonstration wetlands in the Delta. Biomass samples averaged ~435 g/m², with an average lignin content of 9.5 percent.
- Five 30-gal (114-L) containers were filled with water from the Delta. Barrels 1 and 2 received biomass clippings loaded to the natural density. Barrels 3 and 4 were loaded with a higher density of biomass. The fifth barrel did not receive any of the biomass clippings and was used as a control.
- o The barrels were sampled every two weeks for a total of 10 weeks.

Table 7 from the Krasner et al. 1994 paper (see attachment) shows the results of the first sampling of the vegetative biomass experiment. In general, these levels stayed approximately the same over the remainder of the 10-week testing period. The control had a DOC level (reported in the *Journal* as total organic carbon [TOC]) of 4.3-4.9 mg/L, whereas the vegetative biomass barrels contained 12-17 mg/L and 30-40 mg/L DOC for the natural and

TABLE 6	
Bromate formation as a function of TOC and brom	ide

foc	\$ 50.01 0.1 0.2 mg Br /L mg Br /L	0.4-0.5	0.7~0.9
me/1		mg Br/L	mg Br/L
1.2	8 1 11	25	29
1.6	7 12	23	40
2.2	11 15 19	36	53
2.9	12 25	39	57
3.7	19 27	49	65

TABLE 7
Results of first sampling of delta wetlands vegetative biomass experiment\*

	Parameter	Control ,	Barrel 1	Barrel 2	Barrel 3	Barrel 4
之 (0)	mg/L umol/L	4.74 395	16.9 1.412	13.1	39.6 3,302	38.2 3,183
B NH	me/) gris 28	0.129	0397 2048 :	0.390	0.611 0.43	0.544 0.49
10'd	dose_mg/l residual_mg/l	3.75	514	39.4 1.75	. 120.7 21.5	0.07 115.6 22.75
3 11	IMs— <i>µg/L</i> IMs— <i>µmol/L</i> IM:TOC molar	3.08	1,376 10.7	: 1,436 : 11.1	2,932 23.6	2,751 22.0
	ratio—percent A5—µg/L	0.78 119	0.76 923	1.02 1,000	0.72 1,495	0.69 1,470
		_+.	•		2,.00	2,-70

\*Seven days; 25°C; pH 8; THMFP test—Cl<sub>2</sub> dose = 3 × TOC + 8 × NH<sub>3</sub>-N (mg/L)

els were the same regardless of the saturation period tested. These limited data indicate that the volumes of discharge water (from either the drainage of seasonal wetlands or agricultural operations) must be factored into the analysis of the effect of changing land management practices in the delta.

### Summary and conclusions

The relationships among (1) chloride and bromide from seawater intrusion into the delta, (2) TOC loading in the delta, and (3) DBPs formed upon disinfection of delta waters have been studied. The main findings include:

- The ratio of chloride to bromide in delta waters is essentially the same as in pure seawater. Saltwater intrusion from the San Francisco Bay is the major source of bromide ions in exported delta waters.
- Agricultural drainage, particularly from tracts of land that are high in peat soil, is a major source of TOC and DBP precursors.
- Wetlands can also contribute TOC and DBPFP, both from vegetative biomass and from leaching of underlying peat soils. Although an agricultural operation may yield more TOC-DBPFP than an adjacent seasonal wetlands, the volumes of discharge water must be factored into the analysis of the relative contributions of each to the delta channel waters.
- There is a pressing need to limit all DBP precursors (both TOC and bromide) at municipal intakes because of the potential health effects of individual DBPs (e.g., CHCl<sub>2</sub>Br and bromate) and the cost to

remove precursors once they are present in the water. In order to minimize health risks, bromide ion and TOC must be minimized wherever possible.

Finally, these experiments in the delta have resulted in (1) a better methodology to evaluate the source and effects of DBP precursors in the delta and (2) a better understanding of how different control measures—either in the delta or at the treatment plant-will affect the production of DBPs of health and regulatory concern. The data demonstrate that DBP control strategies should include watershed management as well as treatment plant processes. If California utilities are to meet future DBP standards, a way must be found to minimize water quality degradation in the delta.

This article should provide insights into the source and

control of DBP precursors in other watersheds in the United States. Furthermore, the chlorination and ozonation study of a five-by-five matrix of TOC and bromide levels should provide for other utilities insights into the interplay of organic and inorganic precursors and disinfectants in DBP formation.

### Acknowledgment

The authors thank the following staff at MWD's Water Quality Laboratory for analysis of samples: Russell Chinn, Ching Kuo, Warren Schimpff, and Suzanne Teague. The authors acknowledge the cooperation of the DWR, in particular Rick Woodard and Bruce Agee. In addition, the authors thank Issam Najm of Montgomery Watson and Douglas Owen and Zaid Chowdhury of Malcolm Pirnie for designing and testing the matrix. Russ Brown of Jones & Stokes Associates is acknowledged for cooperative research on the wetlands testing. The authors also thank Jim West of the city of West Sacramento for providing the baseline water for the matrix study.

#### References

- US Environmental Protection Agency. Draft D-DBP Rule Language. USEPA Ofce. of Groundwater & Drinking Water, Washington, D.C. (Mar. 17, 1994).
- 2. State of California Department of Water Resources. delta Island Drainage Investigation Rept. DWR Div. of Local Assistance, Sacramento (June 1990).

elevated biomass densities, respectively. These samples were chlorinated at Metropolitan on a reactivity basis at pH  $\sim$ 8. The low- and moderate-DOC samples yielded chlorine residuals of 1.8 to 6.0 mg/L and the high-DOC samples (which required chlorine doses of 116-121 mg/L) yielded chlorine residuals of 22-23 mg/L. Upon chlorination, the control yielded 480-570 µg/L TTHMs. The chlorinated samples for the natural and elevated biomass yielded 1100-1500 µg/L and 2300-2900 µg/L TTHMs, respectively. The control (Delta water) had a 0.8-1.0 percent THM yield per unit of DOC (on a molar basis). The natural and elevated-density biomass THM yields were 0.8-1.1 and 0.7-0.9 percent, respectively. The vegetative biomass was a source of haloacetic acid (HAA) precursors as well.

As decaying vegetation is a source of humic material, the results described above are not surprising. Even the upstream channel waters can potentially pick up DOC and DBPFP from decaying vegetation in the channels of the Delta. These data do demonstrate that the wetlands vegetation can contribute DBP precursors into the Delta.

# Soil Experiments

In addition, a soil experiment was performed (R.T. Brown, 1992; Krasner et al., 1994). The experimental protocol involved the following parameters:

- Soil samples were collected from the surface and from the bottom of a 3-ft (91-cm)-deep hole at two locations in the demonstration wetlands and from two locations in an adjacent agricultural field (both located on peat soils).
- Each soil sample was split into three aliquots in order to perform three water extraction procedures each. Just enough deionized water was added to each aliquot to saturate the soil sample. The "pastes" were allowed to stand for durations of ≤1-2, 7, and 30 days before the soil/water samples were filtered (sets I, II, and III, respectively).

Water-paste saturation tests of peat soils from adjacent tracts of land indicated that more DOC and THMFP could be extracted from the soil of an agricultural tract than from that of a wetlands. In addition, there was more DOC and THMFP in the agricultural field surface samples (~100-190 mg/L DOC and ~8200-14000  $\mu$ g/L THMFP) than in the agricultural field bottom samples (~40-100 mg/L DOC and ~2800-5000  $\mu$ g/L THMFP); there was a smaller difference in the wetlands surface samples (~30-70 mg/L DOC and ~2100-5000  $\mu$ g/L THMFP) and bottom samples (~20-70 mg/L DOC and ~1400-2700  $\mu$ g/L THMFP). This may result, in part, from the constant exposure of soil to oxidative conditions during agricultural operations.

When the soil-test data are evaluated for a molar yield of THMFP per unit of DOC, these samples gave relatively comparable values (median value, 0.63 percent; 25th- and 75th-percentile values, 0.56 and 0.72 percent, respectively). In general, these levels were the same regardless of the saturation period tested. These limited data indicate that the volumes of discharge water (from either the drainage of seasonal wetlands or agricultural operations) must be factored into the analysis to evaluate the impact of changing land management practices in the Delta.

According to George Aiken (the U.S. Geological Survey) (Aiken & Cotsaris, "Soil and Hydrology: Their Effect on NOM [Natural Organic Matter]," 87:1:36, Jan. 1995), "Wetlands and areas rich in organic soils produce water with high DOC concentrations. In these environments the water moves directly from being in intimate contact with vegetation and organic detritus into streams with little or no contact with adsorptive materials. Wetlands are important sources of organic matter in many watersheds, particularly in areas with little relief.". The vegetative biomass and soil experiments demonstrate that the DW Project will result in the release of high levels of DOC and THM precursors into the Delta.

# ADDITIONAL Metropolitan EXPERIMENTS TO EVALUATE DW Project

#### **Demonstration Pond**

In a demonstration-pond experiment performed by the DW Project over a 3-month period, water in a flooded wetland increased in DOC from 4.3 to 39 mg/L:

Sample Date <sup>a</sup> 10/19/89 11/03/89 11/10/89 11/17/89 11/30/89 12/08/89 12/15/89 12/22/89 12/22/89 01/05/90	DOC, mg/L 4.3 14.3 16.9 20.4 30.7 32.0 32.1 35.6 38.6 37.5	THMFP, b µg/L 404 1862 1573 2075 3954 3417 3182 3662 2569 3220	~Cl <sub>2</sub> Demand, ° mg/L 17.6 47.6 55.4 65.9 96.8 100.7 101.0 111.5 120.5 117.2
01/15/90	38.4	3220 2957	117.2 119.9

<sup>&</sup>lt;sup>a</sup>During this sampling period,  $Br^{-} = 0.54-0.68 \text{ mg/L}$ ,  $NH_3-N$  and organic-N not measured. In subsequent testing,  $NH_3-N = <0.10-0.62 \text{ mg/L}$  and organic-N = 1.0-1.9 mg/L.

At this time, the THMFP tests were performed by a DW Project contracting laboratory using a 120-mg/L chlorine dose (without pH control). Although the THMFP values appear to have plateaued out approximately half-way through this testing, the DOC was still rising. The approximate chlorine demand of the samples was estimated based on a reactivity basis with the DOC and ammonia. These samples also contained organic-nitrogen, which also presents a chlorine demand. Approximately half-way through the testing, the theoretical chlorine demand (not including that presented by the organic-nitrogen) was fast approaching (and ultimately equaling) the chlorine dose. Thus, it is possible that the latter samples were underdosed. Based upon the laboratory practices of the DW Project contracting laboratory in 1992, it is possible that the laboratory used in 1989-1990 may have made similar errors in the THMFP testing. Without information on the laboratory practices used in this early work, the data appears suspect.

<sup>&</sup>lt;sup>b</sup>THMFP testing performed by DW Project contracting laboratory with 120 mg/L Cl<sub>2</sub> dose.

<sup>&</sup>lt;sup>c</sup>Assuming chlorine demand  $\sim 3 \times DOC + 7.6 \times NH_3$ -N and that  $NH_3$ -N = 0.62 mg/L.

As discussed above, Metropolitan has done some THMFP experiments with an agricultural drain sample from Mandeville tract. Because this tract of land should be similar to the land in the DW Project, the Mandeville sample provided an opportunity to retrospectively revisit the DW Project demonstration pond experiment. By preparing different dilutions of the Mandeville agricultural drain, a range of DOC levels that are comparable to that evaluated in the DW Project demonstration pond were created. Because the bromide level was fairly constant during the demonstration pond experiment, organic-free water spiked with the same bromide level as the Mandeville agricultural drain was used to dilute the drain samples. In that way, the bromide level remained the same for all samples. THMFP tests were run on split samples using both the DWR methodology (constant 120-mg/L chlorine dose) and the Metropolitan technique (chlorine dosing on a reactivity basis).

The attached Table 1 shows the results for the Mandeville agricultural drain dilution series performed at Metropolitan. Regardless of whether the DWR or the Metropolitan THMFP test method was used, the THMFP went up as DOC went up as long as a positive chlorine residual was maintained. These data are plotted against the DW Project demonstration pond data (see attached Chart 1). Similar DOC levels and THMFP values are shown for either the demonstration pond or the agricultural drain. As discussed above for the soil experiments, although there was a higher amount of DOC and THMFP extracted from the soil in an agricultural field versus that extracted from a wetlands soil, the yield of THMFP per unit of DOC was the same. The results in Chart 1 demonstrate that whether one is examining 32 mg/L of DOC from an agricultural drain or a wetlands (both situated on peat soil tracts of land), that ~3000 μg/L of THMFP will be derived from that sample. The lines for the agricultural drain samples both demonstrate increases in THMFP with increases in DOC except for the 48-mg/L DOC sample using the original DWR THMFP method due to underdosing. On the other hand, the DW Project demonstration pond data are somewhat erratic and even show less THMFP for increases in DOC for a number of samples. Based on the poor QC used by other DW Project contracting laboratories, a laboratory audit should be performed on the laboratory that performed the demonstration pond THMFP samples.

# Effect of Wetlands Release into the Delta

An additional experiment was performed to evaluate the release of stored wetlands water (contribution from vegetative biomass only) into the Delta. SPW was sampled at Devil Canyon Afterbay (outflow of Silverwood Lake) on April 23, 1992 and used as a "reference" matrix. Filtered vegetative biomass samples from barrels 1 (normal biomass density) and 3 (elevated biomass density) on March 31-April 1, 1992 were used to represent the release of wetlands water. A "blended" sample was set up at a 9:1 ratio of SPW to vegetative biomass sample to evaluate the effect of a release of wetlands water that represented 10 percent of the flow in the Delta outflow at H.O. Banks.

In addition to performing THMFP analyses on the SPW, vegetative biomass samples, and the blends, simulated distribution system (SDS) testing was performed on SPW and the blends. SDS testing simulates actual drinking-water treatment plant operations (B. Koch

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	Drain <sup>a</sup>
TABLE 1	Mandeville Agricultural

	<del></del>	,,
	FP/DF	36.5 34.6 37.2 38.0 35.4 37.2 37.2
	THMFP	36.5 27.7 24.8 19.0 11.8 8.90 7.44 3.72
J., 194	THIMFP	4422 3382 3032 2330 1482 1136 966 521
AUTO MASS	Cl <sub>2</sub> :Doc Ratio	3:1 3:1 3:1 3:1 3:1 3:1
, c	Cl <sub>2</sub> Res.	2.2 8.2 8.3 6.4 6.4 2.2
	Cl <sub>2</sub> Dose	160 130 110 80 80 55 42 32 18
	FP/DF <sup>d</sup> umol/L	32.1 39.6 40.4 41.0 42.0 44.0 45.2 48.1
	THIMFP Hmol/L	32.1 31.7 26.9 20.5 14.0 11.0 9.04 4.81
odology	THIMFP HE/L	3899 3854 3275 2520 1744 1380 1153 645
DWR Meth	Cl <sub>2</sub> :DOC Ratio	2.2:1 2.8:1 3.4:1 4.6:1 7.1:1 9.6:1 25:1
	Cl <sub>2</sub> Res. mg/L	0 4.6 115 36 59 77 72 105
	Cl <sub>2</sub> Dose	120 0 120 4.6 120 15 120 36 120 59 120 75 120 105 120 105
; ;	NH3-N mg/L	2.0 1.6 1.3 1.0 0.5 0.5 0.4 0.2
Ç G	DOC mg/L	48.3 38.6 32.2 24.2 16.1 12.1 9.7 4.8
0.000	Sample <u>Desciption</u> e	Undiluted 4/5 Dilution <sup>g</sup> 2/3 Dilution ½ Dilution 1/3 Dilution ¼ Dilution 1/5 Dilution 1/5 Dilution 1/10 Dilution 1/20 Dilution

 $^{4}$ Br $^{-}$  = 0.34 mg/L and organic-N = 3.4 mg/L.

<sup>b</sup>Cl<sub>2</sub> dose = 120 mg/L. <sup>c</sup>Cl<sub>2</sub> dose = 3 x DOC + 8 x NH<sub>3</sub>-N.

 $^{d}$ THMFP divided by dilution factor (DF); DF = 1 for undiluted sample.

 $^{\rm e}$ All analyses performed on 0.45  $\mu$  filtered samples. <sup>f</sup>Weight ratio of Cl<sub>2</sub> to DOC after accounting for ammonia demand (i.e., 7.6 x NH<sub>3</sub>-N). <sup>f</sup>Diluted with organic-free water spiked with 0.34 mg/L Br; therefore, all samples had 0.34 mg/L Br.

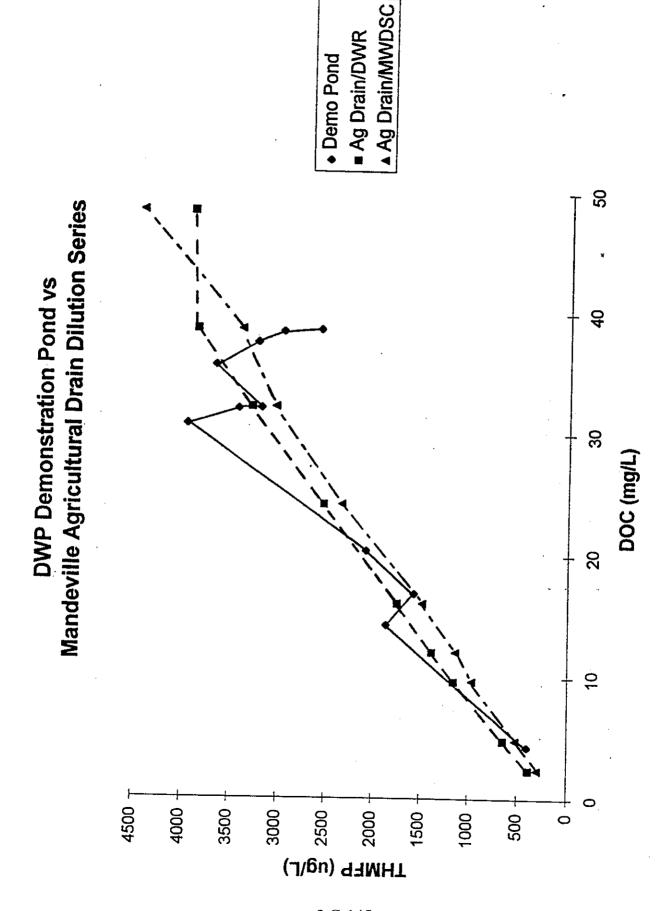


Chart1

cont'd

et al., "Predicting the Formation of DBPs by the Simulated Distribution System," Jour. AWWA, 83:10:62, Oct. 1991). The SDS tests were set up for a 3-h chlorination (as contrasted to the seven days used in the THMFP testing) with a 0.5 to 1.5 mg/L chlorine residual goal, as this simulates typical current treatment of Delta water with chlorine as the primary disinfectant and ammonia addition to form chloramines at the end of the plant to minimize further THM formation.

The results of the THMFP tests are shown below:

Parameter	SPW	Barrel #1	Barrel #3	SPW/Barrel 1	SPW/Barrel 3
DOC, mg/L	3.00	13.59	34.58	4.1	6.2
DOC, µmol/L	250	1132	2882	342	517
UV, cm <sup>-1</sup>	0.087	0.389	0.625	0.117	0.141
Br, mg/L	0.29	0.40	0.42	0.30	0.30
$NH_3-N$ , mg/L	0.11	0.05	0.40	0.10	0.14
THMFP, μg/L	363	1193	2588	466	<i>5</i> 54
" theoretical <sup>b</sup>				446	586
THMFP, µmol/L	2.41	9.09	20.8	3.26	4.03
" theoretical	=			3.08	4.25
THMFP:DOC°	0.96%	0.80%	0.72%	0.95%	0.78%

 $<sup>^{</sup>a}$ Cl<sub>2</sub> dose = 3 x DOC + 8 x NH<sub>3</sub>-N.

<sup>c</sup>Molar ratio.

Based on a mass balancing of the THMFP values of the SPW and vegetative biomass samples, the measured THMFP of the blended samples agreed to within six percent of their theoretical values.

The results of the SDS tests are shown below:

Parameter	SPW	SPW/Barrel 1	SPW/Barrel 3
Cl <sub>2</sub> dose, mg/L	4.56	5.5	6.7
Cl <sub>2</sub> :DOC ratio <sup>a</sup>	1.2:1	1.2:1	0.91:1
Cl <sub>2</sub> residual, mg/L	1.35	1.49	1.55
TTHMs, µg/L	114	136	147
TTHMs, µmol/L	0.649	0.832	0.954
TTHMs/THMFPb	27%	26%	24%
TTHM:DOCb	0.26%	0.24%	0.18%

Weight ratio of Cl<sub>2</sub> to DOC after accounting for ammonia demand (i.e., 7.6 x NH<sub>3</sub>-N). <sup>b</sup>Molar ratio

In SDS tests, the chlorine doses are much lower than that used in THMFP testing. In these SDS tests the Cl<sub>2</sub>:DOC ratio was ~1:1 (unlike the 3:1 ratio used in Metropolitan's THMFP testing). As a result, less THMs are formed in SDS tests (in this case, 24-27 percent of the THMFP

<sup>&</sup>lt;sup>b</sup>Theoretical THMFP of blended samples = 90 percent of THMFP of SPW + 10 percent of the THMFP of the vegetative biomass sample.

values). However, the SDS tests yield THM values that match actual plant and distribution system data (Koch et al., 1991).

In other studies, Krasner and co-workers demonstrated that an agricultural drain sample could be used as a DOC spike (Krasner et al., 1994). SDS testing was used to compare a sample from H. O. Banks to a synthetic sample consisting of 90 percent Sacramento River water sampled at Greene's Landing (upstream of the Delta) and 10 percent agricultural drainage water (35 mg/L DOC; sampled from a peat-soil tract of land), with an appropriate bromide spike (see attached Table 3 from Krasner et al. paper). The synthetic sample matched the H. O. Banks sample in DOC (reported at TOC in the *Journal*), ultraviolet (UV) absorbance measured at 254 nm, and bromide levels, and similar amounts of individual and TTHMs were produced.

These data demonstrate that the release of high-DOC waters with high-THMFP values (from either agricultural drains or a wetlands) in the Delta will increase the THM precursor loading (as measured by DOC, UV, or THMFP) in exported water. Moreover, SDS testing has demonstrated that such releases will significantly increase the THM levels produced during the chlorination of Delta waters.

IMPACT OF DW Project ON COMPLIANCE WITH DRINKING-WATER REGULATIONS

Regulatory Background

As part of the draft Disinfectants/DBP (D/DBP) Rule, there will be Stage 1 and 2 maximum contaminant levels (MCLs) for TTHMs at 80 and 40 µg/L, respectively; plus MCLs will be established for other DBPs (Environmental Protection Agency [EPA], National Primary Drinking Water Regulations; Disinfectants and Disinfection Byproducts; Proposed Rule. Federal Register, 59:145:38668, July 29, 1994). In addition, there will be a treatment requirement in Stage 1 for surface waters to remove DBP precursors through enhanced coagulation or softening (S.W. Krasner & G.L. Amy, "Jar-Test Evaluations of Enhanced Coagulation," Jour. AWWA, 87:10:93, Oct. 1995). The removal of TOC will be used as a treatment performance indicator for compliance with the precursor removal criteria. The draft rule has proposed that advanced precursor removal technologies (specifically the use of granular activated carbon [GAC]) will be best available technology for Stage 2.

During the development of the D/DBP Rule, the issue of watershed management for the control of DBP precursors was discussed. The rule, however, has no specific provisions for watershed controls because of statutory limitations, as well as the lack of control that most utilities have over land use. However, the preamble to the rule indicated that watershed protection is highly desirable and should be pursued whenever possible. In addition, the rule offers incentives for watershed protection by providing waivers on certain aspects of the regulations to systems treating low-DOC waters. For example, the enhanced coagulation requirements for DBP precursor control are not required for systems treating water with a TOC of 2.0 mg/L or lower. In addition, an Information Collection Rule (ICR) (EPA, National Primary Drinking Water Regulations: Monitoring Requirements for Public Drinking Water Supplies: Cryptosporidium, Giardia, Viruses, Disinfection Byproducts, Water Treatment Plant Data and

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TABLE 2
Testing of delta waters for THMFP\*

	CI	<b>Mannel</b> Water	3	;	Ngricultural Draina	
Parameter	Greens's Landing	Vernelle	H.O. Sanks	Upper Jones	Secon Island	Empire Treat
TOC—mg/L TOC—µmol/L UV—cm² UV/TOC—cm²/mg/L NH <sub>3</sub> N—mg/L Br—mg/L Cl <sub>2</sub> dose—mg/L Cl <sub>3</sub> residual—mg/L TTHMs—µmol/L HAAs—µm/L TTHMS—ymol/L HAAs—yg//L TTHM:TOC—µmol/µmol, percent DCAA:CHCl <sub>3</sub> —µg/µg, percent TCAA:CHCl <sub>3</sub> —µg/µg, percent	1.88 155 0.040 0.022 0.65 0.03 10.8 2.06 144 1.16 77 0.746 32.5 27.6	2.81 234 0.077 0.027 0.04 0.36 8.60 2.18 360 2.27 101 0.970 38.1 21.2	4.72 393 0.148 0.031 0.15 0.14 18.1 4.32 421 3.23 215 0.822 35.7 28.5	6.63 552 0.247 0.037 0.79 0.34 25.8 3.24 731 5.37 316 0.973 34.2 30.0	10.93 911 0.454 0.042 0.98 0.34 40.8 2.88 1.177 9.16 682 1.01 36.9 34.7	30.89 2.574 1.35 0.044 3.1 98.9 2.88 4.526 31.3 1.872 1.22 39.2 33.3

\*Sevenday, 25°C, pH 8 THMFP test— $Ct_2$  dose =  $3 \times TOC + 8 \times NH_3 H$  (mg/L)

TABLE 3
Comparison of synthetic delta sample\*
with one from H.O. Banks pumping plant

Parameter	H.O. Banks Sample	Synthetic Sample
TOC-mg/L	3.65	3.53
UV—cm <sup>-1</sup>	0.122	0.126
Br—mg/L	0.48	0.48
3-h SDS THM µg/L		
CHCI <sub>3</sub>	12	13
CHCL <sub>B</sub> r	34	36
CHCIBr <sub>2</sub>	67	70
CHBr <sub>3</sub>	37	38
TTHMs	150	157
24-h SDS THM—µg/L		
CHCI3	34	34
CHCI <sub>2</sub> Br	65	73
CHCIBr <sub>2</sub>	102	117
CHBr <sub>3</sub>	36	40
TTHMs	237	263

\*Synthetic water \* 90 percent Greene's Landing + 10 percent agricultural drainage + bromide spike sample

Br values for the utility with atypically high Br levels were excluded (i.e., 3.0 mg/L), linear regression yielded the following equation (with a correlation coefficient r of 0.86):

$$Br^{-} = 0.0034 \times Ci^{-} - 0.0071$$
 (6)

It is significant that high Br levels were detected not only at utilities affected by saltwater intrusion, but at inland utilities as well. Thus, the Br to Cl relationship tended to be similar to that in seawater (Eq 2).

More recently, a nationwide Br study was conducted at 100 utilities. <sup>19</sup> The median Br occurrences for 68 large and 20 small utilities (based on a population cutoff of 50,000) were 0.042 and 0.029 mg/L, respectively, whereas the median Br level for 12 targeted utilities with known Br problems was 0.190 mg/L. In this study, there was no clear common Br to-Cl relationship, although the median ratio was similar to that of seawater. When surface water (river

and lake) samples (from both targeted and random utilities) were examined, the median, 90th percentile and 95th percentile for Br occurrence were ~0.03, ~0.14, and ~0.4 mg/L, respectively. The Br levels in the delta outflow have typically been in the 90th to 95th percentile of the nationwide occurrence.

Sources of DBP precursors. Table 2 shows the TOC and UV absorbance (at 254 nm) of each water. In addition, the UV-to-TOC ratio indicates the tendency of the organic matter to form THMs. The TOC, UV, and UV-to-TOC data show that the two rivers entering the delta (particularly the Sacramento River) pick up organic matter in passing through the delta. The agricultural drain on the peat-soil tract of land (Empire Tract) had the highest level (31 mg/L TOC) of organic matter, and that material had a higher reactivity based on the UV-to-TOC ratio.

Chlorinated channel waters produced THMFPs of 144-421  $\mu$ g/L (1.2-3.2  $\mu$ mol/L), whereas the agricultural drains contained 731-4,526 µg/L (5.4-31 µmol/L) THMFP. As Sacramento River water passed through the delta, the THMFP (on a molar basis) increased almost threefold in traversing the distance from Greene's Landing to the H.O. Banks pumping plant. Empire Tract had 27 times more THMFP than Greene's Landing, so the significant contribution of peat-soil agricultural drainage is clear. The molar yield of THMs per unit of TOC was 0.75-1.2 percent; this yield tended to increase with increasing UV-to-TOC ratio. However, samples high in Br will tend—even on a molar basis—to have a higher yield of THMs. This may explain the higher yield for Vernalis (0.36 mg Br-/L) than for H.O. Banks (0.14 mg Br-/L) and the very high yield for Empire Tract (3.1 mg Br<sup>-</sup>/L).

The HAA5 formation potential (HAA5FP) was 77–215 µg/L for channel waters and 316–1,872 µg/L for agricultural drains. Although HAA5 does not represent total HAAs (because not all of the nine HAA species were measured), comparisons can be made between di– or trichloroacetic acid (DCAA or TCAA) and chloroform (CHCl<sub>3</sub>): the DCAA-to-CHCl<sub>3</sub> weight

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Other Information Requirements; Proposed Rule. Federal Register, 59:28:6332, Feb. 10, 1994) will require surface-water systems that serve >100,000 people and treat water with a TOC>4.0 mg/L to do a bench or pilot study to evaluate an advanced precursor removal technology (either GAC or membranes) (S.W. Krasner et al., "Bench and Pilot Testing under the ICR," Jour. AWWA, 87:8:60, Aug. 1995). Such advanced precursor removal technologies may be needed to meet Stage 2 requirements.

### Impact of DW Project on Compliance

Conventional treatment of Delta water will be unable to meet the proposed requirements in the D/DBP Rule (Krasner et al., 1994). California utilities are exploring and installing new (and costly) treatment technologies to be able to comply with more stringent disinfection and DBP requirements. The proposed rule will add a requirement to remove TOC in addition to meeting MCLs on DBPs such as THMs.

Wetlands have been demonstrated to contribute DOC and DBPFP, from both vegetative biomass and leaching from underlying peat soils. Although an agricultural operation may yield more DOC/DBPFP than an adjacent seasonal wetlands, the volumes of discharge water must be factored into the analysis of the relative contributions of each to the Delta channel waters. In evaluating a project of this nature, the volume of water and, thus, the total mass of DOC and THMFP leaching from the peat soils and entering the Delta water supply must be considered. Because drainage flow rates are, as yet, inadequately documented for agricultural drains, it is not possible to generate accurate estimates of mass loadings of the current agricultural practices. Additionally, there are inadequate data to predict the effects on DOC and THMFP of seasonal inundation of peat soil. There are limited data suggesting that, for peat soils, the concentration of DOC/THMFP in the water is a function of the duration of inundation. These limited data imply seasonal impoundments on peat soils could result in a significant increase of the DOC content of the impounded water.

The DW Project EIR/EIS predicts a reduction in DOC and THMFP for the proposed DW Project as compared to the current agricultural operations. The data and assumptions supporting this conclusion are, however, equivocal. It is likely that the water quality effect of this project will probably not result in any significant improvement in the quality of water exported from the Delta.

ncdeltch/corres

### **Metropolitan Water District of Southern California**

- **C14-1.** See responses to Comments C14-2 through C14-37 for discussions of specific concerns expressed in this letter.
- C14-2. MWD participated in the analytical lab measurements for the Delta Wetlands experiments. As indicated on page C3-9 of Appendix C3 of the 1995 DEIR/EIS, the THMFP values measured by MWD were considered reliable and were used in the assessment of results of the 1992 water quality experiments presented in this appendix; the THMFP values determined by another analytical laboratory were determined to be unreliable and were rejected. The measurement difficulties are described fully in Appendix C3.

Since this comment was received, an updated analysis of potential project effects on DOC and THM formation has been performed; the methods and results are presented in the 2000 REIR/EIS. See Master Response 7, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts", for a discussion of the updated analysis. Additionally, the WQMP negotiated by Delta Wetlands and CUWA addresses the concerns of CUWA and its member agencies about the potential effects of Delta Wetlands Project operations on THMs; the WQMP is included in the Delta Wetlands—CUWA agreement in the Appendix to the Responses to Comments.

- C14-3. The commenter provides information about changes in analytical methods for estimating THMFP from the method described in Appendix C2. THMFP, however, was not used as an impact assessment variable in the 1995 DEIR/EIS or the 2000 REIR/EIS; rather, the relative effects of Delta Wetlands Project operations on concentrations of the THM precursors DOC and bromide were analyzed. The expected THM concentrations in treated drinking water were also used as an impact assessment variable. Therefore, THMFP measurement problems do not affect the impact assessment conclusions. See also response to Comment C14-2.
- **C14-4.** THMFP measurements were not directly used in the impact assessment. The experiments described in Appendix C3 were designed to determine the following:
  - # the expected contribution from decomposition of wetland vegetation to levels of DOC and associated variables in ponded water and
  - # the relative contributions of DOC and associated variables that may be expected from agricultural and wetland soils.

The effects of Delta Wetlands Project operations on levels of DOC and bromide were used as impact assessment variables. The analysis of project effects on DOC and THM was updated as part of the 2000 REIR/EIS. See also response to Comment C14-2 and Master Response 7, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts".

- C14-5. The commenter is referring to information in the 1995 DEIR/EIS that was updated by the 2000 REIR/EIS. Chapter 4 of the 2000 REIR/EIS (see Chapter 3C in FEIS Volume 1) included an updated analysis of potential project effects on DOC concentrations in Delta exports and THM concentrations in treated drinking water. As in the 1995 DEIR/EIS analysis, both were found to be significant impacts. See Master Response 7, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts".
- C14-6. The commenter is referring to information in the 1995 DEIR/EIS that was updated by the 2000 REIR/EIS. The DOC assessment described in Appendix C4 of the 1995 DEIR/EIS estimated a total DOC load from the reservoir islands of 12 grams per square meter (g/m²) per year, which is approximately twice that measured from wetland vegetation and equal to the average load from Delta agricultural drainage. In other words, no reduction from current agricultural DOC loading was assumed in the 1995 DEIR/EIS analysis.

Chapter 4 of the 2000 REIR/EIS (see FEIS Volume 1, Chapter 3C) provided an updated evaluation of potential project effects on DOC concentrations in Delta exports based on a wide range of values for potential DOC loading from the reservoir peat soils. The water quality impact analyses in both the 1995 DEIR/EIS and the 2000 REIR/EIS found the potential effect of project operations on DOC to be significant. See Master Response 7, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts".

- C14-7. The commenter is referring to information in the 1995 DEIR/EIS that was updated by the 2000 REIR/EIS. Chapter 4 of the 2000 REIR/EIS (see FEIS Volume 1, Chapter 3C) included an updated analysis of potential project effects on DOC concentrations in Delta exports and THM concentrations in treated drinking water. See Master Response 7, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts".
- **C14-8.** See responses to Comments B7-16 and B7-18 and Master Response 7, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts".
- C14-9. The commenter is referring to information in the 1995 DEIR/EIS that was updated by the 2000 REIR/EIS. Table 4-5 in Chapter 4 of the 2000 REIR/EIS (see Table 3C-13 in FEIS Volume 1, Chapter 3C) presented an updated comparison of DOC loading measurements and estimates, including estimates presented in the 1997 water right hearing. See Master Response 7, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts", for a description of the updated analysis of project effects on DOC and THM concentrations presented in Chapter 4 of the 2000 REIR/EIS, mitigation of project effects, and protections provided by the Delta Wetlands Project WQMP.
- C14-10. Data do indicate that there is a large difference between submerged soils and agricultural soils. Most of the peat in the Delta is below the water table and is therefore a submerged peat soil. U.S. Geological Survey (USGS) research on groundwater quality in the Delta peat soils suggests that only aerobic peat soils produce high levels of carbon dioxide (evidence of oxidation).

Results of the seasonal storage experiment, described on page C3-7 in Appendix C3 of the 1995 DEIR/EIS, indicated that very little leaching occurred during the 3-month period of flooding. The experiment started with ponds where vegetation had decayed. High concentrations of DOC appeared immediately upon flooding, but DOC and salt concentrations did not increase during the 3-month period, suggesting that the peat soil leaching, which continued for those 3 months, was not sufficient to increase concentrations substantially.

The updated impact assessment of DOC loading from flooded peat soil presented in the 2000 REIR/EIS (see Chapter 3C of FEIS Volume 1) included the results of DWR's SMARTS experiments, as described in response to Comment B7-9. The SMARTS experiments did not provide any detailed measurements of anaerobic chemistry for the flooded peat soils, but they did indicate that some peat soils will produce high concentrations of pore-water DOC.

C14-11. The study of the potential presence of agricultural chemical residues in Delta Wetlands Project island soils is described in Appendix C6, "Assessment of Potential Water Contaminants on the Delta Wetlands Project Islands", of the 1995 DEIR/EIS. This study began with a comparison of the list of agricultural chemicals that had been used on the project islands to regulatory agencies' lists of chemicals that pose risks to human health or the environment but are *not* known to leach to groundwater, and to lists of pesticides suspected of leaching to groundwater.

"Screening for Target Pesticides" on page C6-2 of the 1995 DEIR/EIS and "Other Pesticides Posing Environmental or Health Risks" on page C6-5 describe the process of screening for carcinogens and other toxic chemicals *not* considered by the California Department of Food and Agriculture and EPA to have the potential to leach to groundwater, but considered to pose risks to human health or the environment if found to be present in soils. This list of carcinogens and other toxic chemicals was compiled using information from California Department of Health Services, DWR, the SWRCB, and DFG. The surface soil testing described in Appendix C6 was conducted to determine whether any of the chemicals known to have been used on the project islands and appearing in this screening list were present in the project island soils; subsurface soil testing was performed to determine the presence of those chemicals with leaching potential.

The results of the surface soil testing are described for each island on page C6-7 of the 1995 DEIR/EIS, and conclusions about the potential for contamination of water applied to the Delta Wetlands habitat islands or stored on and discharged from the reservoir islands are described on pages C6-7 through C6-10. No significant risks to human health or wildlife were identified. See also response to Comment C14-13 below.

There are some sites of potential contamination from past agricultural operations and waste disposal operations on the Delta Wetlands Project islands; therefore, Mitigation Measure C-8 was recommended to address the unlikely event of the release of pollutant residues into stored water. This measure recommends that preliminary site assessments

be conducted at potential contamination sites, in addition to those already performed for the impact analysis. Site cleanup or remediation would be necessary if any pollutant sources were identified. Monitoring for pesticides on the first filling of the reservoir islands and before discharges begin would ensure that chemicals of concern would not be released into the Delta as a result of project operations.

- C14-12. The 1995 DEIR/EIS identified the potential need for increased mosquito abatement under project operations in Chapter 3N, "Mosquitos and Public Health". As described on page 3N-5 of the 1995 DEIR/EIS (page 3N-5 of FEIS Volume 1), the San Joaquin County Mosquito Abatement District (SJCMAD) and Contra Costa Mosquito Abatement District (CCMAD) have reduced their reliance on pesticides as part of their mosquito abatement programs and rely on biological control, ecological control, and source reductions. Among the pesticides used by SJCMAD and CCMAD, methoprene and Bti are preferred. Methoprene dissipates from the environment within 48 hours of application. Bti is a bacterial, rather than chemical, larvicide. All mosquito control measures, including application of pesticides, would be conducted in accordance with EPA and state regulations.
- C14-13. Findings of the experiments described in Appendix C3 of the 1995 DEIR/EIS indicate that storage of water on Delta peat soils is not likely to produce unacceptable concentrations of DOC, algae, and other contaminants. The Secchi depth reading recorded during the flooded wetland experiment (Table C3-3 in Appendix C3 of the 1995 DEIR/EIS) indicated that significant suspension of sediment did not occur during the 3-month period of the experiment. This experiment also required scientists to walk across the pond every 2 weeks to collect samples. The peat bottom was observed to be solid, and it remained undisturbed during these sampling procedures. See response to Comment C14-10 regarding leaching from peat soils. See also response to Comment C9-32 regarding wind mixing and increased turbidity.

Detailed sediment resuspension and deposition experiments on peat soils have not been performed. If peat soils are susceptible to surface erosion, the effects should be observed in agricultural drainage. However, the Municipal Water Quality Investigations (MWQI) data on drainage from Bouldin Island show suspended sediment levels similar to those of channel water, suggesting that not much suspension of peat soils occurs in agricultural drainage.

Although sediment resuspension has not been observed under existing agricultural conditions, wind mixing could result in sediment resuspension on the reservoir islands under flooded conditions. If it occurred, Delta Wetlands would not discharge until sediment particles settled, as specified in Mitigation Measure C-7, described on page 3C-30 of the 1995 DEIR/EIS (see page 3C-34 of FEIS Volume 1). The WQMP requires that Delta Wetlands monitor TOC, bromide, TDS, chloride, UVA, DO, turbidity, and temperature. The real-time water quality monitoring required by the WQMP should adequately prevent Delta Wetlands from discharging water with excessive levels of nutrients, suspended sediment, or DOC concentrations.

- C14-14. See responses to Comments C14-11 and C14-13 above.
- **C14-15.** See Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, Including the CALFED Bay-Delta Program".
- C14-16. Delta Wetlands Project operations would not affect the quantity of SWP and CVP supplies because the project would not be allowed to interfere with SWP and CVP operations. See Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program", regarding coordination of project operations with the SWP and CVP. Whereas the monthly modeling using the X2 equation might produce the effect described by the commenter in a few simulated years, actual project operations would be controlled so that no interference with SWP and CVP exports could occur. See response to Comment B7-1. Additionally, as described in Chapter 2 of FEIS Volume 1, Delta Wetlands entered into stipulated agreements with both DWR and USBR during the 1997 water right hearing. These agreements describe how Delta Wetlands would operate independently without interfering with DWR's and USBR's operations of the SWP and CVP. Changes in X2 attributable to the project are further restricted by the terms of the protest dismissal agreement between CCWD and Delta Wetlands; see response to Comment C9-17 and the Appendix to the Response to Comments for more details about the agreement.
- **C14-17.** See response to Comment C9-11.
- C14-18. As described in Appendix 2 under "Related Agreements, Programs, and Studies" and in Appendix 4, "Section 404(b)(1) Alternatives Analysis", there are many agreements, programs, and studies related to environmental conditions in the Delta and the quantity and/or quality of water supply in the Delta. Implementation of most of the programs described in these sections remains uncertain. Although particular Delta facilities may be implemented as part of the CALFED program, they were not described in detail in the 1995 DEIR/EIS because the feasibility of implementing those facilities is speculative. The 2000 REIR/EIS included an update on the status of the CALFED program, which calls for the development of in-Delta storage and south-Delta improvements to allow the use of full SWP pumping capacity. See also response to Comment C9-52.
- C14-19. Tidal hydrodynamics in channels are fully described in Appendix B1 of the 1995 DEIR/EIS. Changes in channel velocities that would result from Delta Wetlands Project operations were estimated by adding the project's discharge flow to the tidal flow. Figures B1-45 through B1-50 show the effects of maximum possible Delta Wetlands Project operations on channel flows and velocities.

The figures indicate substantial changes in channel flows and corresponding velocities during maximum project discharges. The largest effects are predicted for Old and Middle Rivers between Bacon Island and the SWP and CVP export pumps. However, flow and velocity in these channels are governed by maximum export capacities without regard for the source of water; Delta Wetlands Project operations therefore would not

change the maximum flows and velocities in these channels, although they would increase the frequency of these maximum channel flows and velocities. This effect was determined to be less than significant.

Hydrodynamic conditions were not simulated for cumulative future conditions. Cumulative future conditions that include channel improvements under DWR's South Delta Project would allow higher maximum export rates; therefore, the maximum channel velocities under future conditions would be higher than those reported for the existing condition. However, these future hydrodynamic conditions cannot be simulated because changes in channel configurations, modifications to Clifton Court Forebay operations, and the design for new intakes (including new fish screens) proposed as part of the South Delta Project are not yet finalized. Nevertheless, it can be assumed that the effect of the Delta Wetlands Project on future cumulative hydrodynamic conditions would be similar to the effect described for the existing condition; Delta Wetlands Project operations would increase the *frequency* of these maximum channel flows but would not increase the maximum flows and velocities in these south-Delta channels. The 1995 DEIR/EIS fisheries assessment assumed operation of the barrier at the head of Old River; see also response to Comment B6-28.

- **C14-20.** Appendix H, "Levee Stability and Seepage Technical Report", of the 2000 REIR/EIS presents an analysis of levee stability for the Delta Wetlands Project's proposed reservoir island levees. The analysis includes an evaluation of slope stability under rapid drawdown and seismic conditions, as well as postconstruction and long-term conditions.
- **C14-21.** See Master Response 1, "Project Objectives: Analyzing Effects of Water Transfers, Banking, and Augmenting Outflow".
- C14-22. The project as analyzed in the 2000 REIR/EIS included the terms of the federal and state biological opinions and described how these terms, particularly the FOC, limit project operations to protect aquatic resources. All measures included in the biological opinions would be made terms of any USACE permit issued to Delta Wetlands in accordance with Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act.
- **C14-23.** The commenter is correct in noting that Delta Wetlands discharges would not have the same biological benefits as Delta inflows. See response to Comment A4-3.
- **C14-24.** The commenter's suggested change to the text on page 3A-9 of the 1995 DEIR/EIS does not convey the intended meaning; the change has not been made.

The text referred to by the commenter on page 3A-15 of the 1995 DEIR/EIS should have read as follows:

"Delta Wetlands discharge for export would occur during months when SWP and CVP export pumping is limited by the 1995 WQCP 'percent inflow' export limits".

- The correction to the title of Table 3A-4 has been noted; the values shown in the table do not represent cumulative no-project conditions.
- **C14-25.** The correction to the description of DWRSIM has been noted. This correction does not affect understanding of the impact assessment; therefore, the text has not been changed.
- **C14-26.** The commenter is correct in noting that Figure A1-1 identifies streams that are not included in DWRSIM. This correction does not affect understanding of the impact assessment; therefore, no change has been made to the text.
- **C14-27.** The correct minimum export pumping value of 1,500 cfs (from the 1995 WQCP) was used in the DeltaSOS simulations described in the 1995 DEIR/EIS.
- **C14-28.** The commenter's correction has been noted. These simulation results have been replaced with those included in the 2000 REIR/EIS for the analysis of the proposed project. This correction does not change the impact analysis; therefore, no change has been made to the text.
- **C14-29.** The commenter's correction has been noted. These simulation results have been replaced with those included in the 2000 REIR/EIS for the analysis of the proposed project. This correction does not change the impact analysis; therefore, no change has been made to the text.
- **C14-30.** The commenter is correct in noting that the annual totals in Table A3-4a are incorrect. The correct values are shown in Table A3-1, in the column labeled "Banks & Tracy Pumping".
- C14-31. The potential response of species to flow conditions was considered in the evaluation of project impacts on fish. The DeltaMOVE model was used to assess the movement of water in the Delta and the potential effect on fish movement and entrainment. This information, together with species-specific information about timing and distribution of fish occurrence, was used to estimate effects on fish populations and homing cues; see Chapter 3F and Appendix F2 of the 1995 DEIR/EIS. This issue was also discussed in the analysis of project effects on Mokelumne River salmon presented in Chapter 5 of the 2000 REIR/EIS.

As described in the 1995 DEIR/EIS and the 2000 REIR/EIS, Delta Wetlands Project operations would not affect compliance with the minimum-outflow objectives in the 1995 WQCP, and they would not affect inflow from the San Joaquin, Sacramento, or Mokelumne Rivers. See also responses to Comments A2-2 and A4-3 regarding the relationship of project diversions and discharges to the 1995 WQCP E/I ratio.

C14-32. The 1995 DEIR/EIS used the best available information and tools in the evaluation of impacts. The limitations of the methodology for assessment of impacts on juvenile chinook salmon were discussed at length with USFWS, NMFS, and DFG (meeting at Jones & Stokes Associates' office in Sacramento, September 5, 1995). Alternative methodologies were not identified. To recognize that modeling results may not encompass

the full range of impacts, the agencies acknowledged a margin of error in the modeling during the ESA consultation process and ensured that the fish protection measures in the FOC and RPMs can be used to address a wide range of potential effect. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for information on protective measures for juvenile chinook salmon included in the FOC and RPMs. See also responses to Comments A2-4 and A2-5 from NMFS regarding the mortality index used in the 1995 DEIR/EIS fisheries impact assessment.

- **C14-33.** See responses to Comments B7-74 and B7-83 regarding the abundance and distribution of splittail and analysis of Delta Wetlands Project effects on splittail.
- C14-34. The analysis of Delta Wetlands Project impacts on the transport of striped bass and delta smelt was conservative (i.e., it probably overestimated impacts) because it was recognized that larval and juvenile fish demonstrate volitional behavior. Insufficient information is available to develop relationships between volitional behavior and changes in flow and other habitat conditions. The FOC and RPMs included in the biological opinions would be used to address a wide range of potential impacts of the Delta Wetlands Project. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".
- **C14-35.** See response to Comment B6-60 regarding fish screen design, and response to Comment B7-64 regarding predation at Delta Wetlands intake facilities.
- C14-36. Impact F-5 in the 1995 DEIR/EIS identifies an increase in entrainment loss of striped bass eggs and larvae, delta smelt larvae, and longfin smelt larvae as a significant impact. In addition, Impact F-7 identifies an increase in entrainment loss of juvenile striped bass and delta smelt as a significant impact. Implementing the FOC and RPMs will eliminate most of the potential for entrainment of fish eggs and larvae. Using effective fish screens that meet the criteria specified in the FOC also would prevent entrainment of juvenile and adult fish. Although some fish may still be entrained in diversions, incorporating the FOC and RPMs into the proposed project mitigates entrainment impacts to a less-than-significant level. For details, see "Indirect Effects of Delta Wetlands Project Diversions and Discharges on Flows, Downstream Transport, Area of Optimal Salinity Habitat, and Entrainment" in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions". A plan for salvage of fish that rear on the project islands was not developed. If reservoir islands are determined to provide rearing habitat conducive to survival of fish (e.g., delta smelt), Delta Wetlands could work with USFWS to develop a management and salvage program.

- **C14-37.** See response to Comment C2-5. See also response to comment B6-35 regarding the difference between water budget terms under the No-Project Alternative and existing conditions.
- **C14-38.** The information presented in this attachment was considered in the responses to comments presented above.



Telephone (510) 625-2279

December 21, 1995

State Water Resources Control Board Division of Water Rights Attention: Jim Sutton P.O. Box 2000 Sacramento, CA 95812-2000

U.S. Army Corps of Engineers Regulatory Branch Attention: Jim Monroe 1324 J Street, Room 1444 Sacramento, CA 95814-2922

RE: Comments on Delta Wetlands Draft EIR/S

# Gentlemen:

FAX

(510) 625-0169

Thank you for the opportunity to comment on the Delta Wetlands Draft Environmental Impact Report/Statement. Ironhouse Sanitary District (the "District") provides sanitary sewage service to the Oakley and Bethel Island communities and surrounding areas located in eastern Contra Costa County, California. The District has the following comments on the Draft EIR/S, each of which is numbered to assist you in responding to them. Please feel free to contact me directly if you have any questions concerning any of my comments.

IR000435.ISD 21/61/01

COMMENT 1. Please include a reference to the District's Expansion Plan as it relates to Jersey Island in the Final EIR/S.

The District owns approximately 2,800 acres on Jersey Island. The District purchased these lands in order to implement its long-range Wastewater Facilities Upgrade and Expansion Plan, which is described in detail in the Final Environmental Impact Report: IRONHOUSE SANITARY DISTRICT WASTEWATER FACILITIES PLAN & DELTA ENVIRONMENT SCIENCE CENTER, certified by the District on November 1, 1994. A copy of this FEIR is attached for your reference. As described in the FEIR, the District intends to use its lands on Jersey Island for the land application of recycled water on irrigated pasture and agricultural crops, and for the application of biosolids at agronomic rates as a fertilizer and soil amendment, all in support of the District's agricultural activities on Jersey Island. This reference would appear to fit in Appendix 2 in the section entitled "Related Agreements, Programs and Studies."

COMMENT 2. What will be the impact of the flooding of Webb Tract on the height of the water table on Jersey Island and the District's plan to use the Island for the land application of recycled water and biosolids as part of its agricultural operations?

The Draft EIR/S indirectly discusses this issue under "Project Features to Control Seepage," at pages 3D-8 through 3D-10, and describes "Seepage Performance Standards" at page 3D-9. The DEIR/S at page 3D-9 also states that "Final seepage performance standards will be set by SWRCB in consultation with the local reclamation districts governing adjacent islands, the technical review group described below, and DWR." The DEIR/S identifies "Impact D-2: Potential for Seepage from Reservoir Islands to Adjacent Islands" at page 3D-15. Figure 3D-3, among other features, shows background piezometer locations. No background piezometers are shown on Jersey Island.

The District requests that the Final EIR/S, in answering the above question, specifically comment on at least the following items:

C15-1

C15-2

IR000435.ISD 21/61/01

(a) The Draft EIR/S discusses the impacts of the flooding of the DW islands on the heights of the water tables on adjacent islands, including Jersey Island, in the most general of terms. See, for example, Impact D-2 at page 3D-15, which states "Implementation of Alternative 1 could increase the potential for seepage beneath the DW island levees to adjacent islands during project operation." In order to enable the decision-makers and interested parties to adequately understand the seepage impacts of the Project, the Draft EIR/S needs to provide a much more detailed discussion of these impacts. The State CEQA Guidelines at Section 15146(a) provide: "An EIR on a construction project will necessarily be more detailed in the specific effects of the project than will be an EIR on the adoption of a local general plan or comprehensive zoning ordinance because the effects of the construction can be predicted with greater accuracy." Since the DW Project is a "construction project," the DRAFT EIR/S must specifically analyze, among other effects, whether the flooding of Webb Tract will increase the height of the water table on Jersey Island. If this flooding will impact the height of the water table, this analysis should be quantitative and show how the height of the water table on Jersey Island will change during the course of a year as water is diverted onto and discharged from Webb Tract.

C15-3

(b) The Draft EIR/S at page 3D-3 notes that "Site-specific information on groundwater conditions on the DW islands and neighboring islands is now being collected by HLA and Hultgren Geotechnical Engineers under contract to give an indication of existing seepage through the aquifer." The DRAFT EIR/S also references Appendix D1 for groundwater monitoring to date. Please provide a detailed list, including page references, of all existing and new data pertaining to groundwater conditions on Jersey Island.

C15-4

(c) Would the seepage performance standards recommended by Harding Lawson Associates and approved by the Seepage Review Committee, along with the remedial measures to control seepage

C15-5

discussed at page 3D-10, ensure that the District may use Jersey Island for its intended purposes? Please refer to the attached copy of the FEIR, which describes these purposes at Section 2.4.2 beginning at page 2-14, in order to make your response specific to Jersey Island.

C15-5 cont'd

(d) What would be the District's remedy if the remedial measures to control seepage discussed at page 3D-10 of the Draft EIR/S fail and the height of the water table on Jersey Island, or any other adjacent island, increases? Would the DW Project pump out any excess water on Jersey Island to lower the water table to its preexisting level? Would the DW Project make alternate provision for the District to dispose of its recycled water and biosolids if this could not be done on Jersey Island due to an increase in the height of the water table? Would the DW reimburse Reclamation District 830 for any increases in pumping costs it may experience due to the flooding of Webb Tract, including increased electricity costs and any upgrading of its existing pumps? (Note: Reclamation District 830 is separately commenting on the Draft EIR/S.)

C15-6

(e) What would be the impacts of "relief wells installed at regular spacings near the toes of existing levees on neighboring islands," as described at page 3D-10 of the DEIR/S, on the stability of these levees? Please explain why these relief wells "can reduce the risk of levee instability as subsidence continues," as noted on page 3D-10 of the Draft EIR/S.

C15-7

(f) The District requests that it be included in the group which will consult with SWRCB on the Final Seepage Performance Standards. Please respond to this request.

C15-8

(g) The District requests that an appropriate number of background piezometers be located on Jersey Island. Please respond to this request.

C15-0

COMMENT 3. What will be the impact of the flooding of Webb and Holland Tracts on the height of the water table on Bethel Island and Hotchkiss Tract, where the District's sewer system piping is subject to significant infiltration?

Figure 3D-3, among other features, shows piezometer locations on Bethel Island (seven) and on Hotchkiss Tract in the vicinity of Sand Mound Slough (one). Would these locations be adequate to monitor the height of the water table in these areas? The concern here is that an increase in the height of the water table will increase infiltration loads on the sewer collection system, resulting in an increase in pumping, treatment and disposal costs. Please contact me directly for information on the location of the sewer collection system pipes which are experiencing infiltration.

A related potential problem concerns an existing, unused District collection pipeline which runs under Sand Mound Slough between Holland and Hotchkiss Tracts. Would the flooding of Holland Tract allow water to enter this pipe and be transported through it to Hotchkiss Tract. Please contact me directly at the number listed above for information on this unused pipeline.

COMMENT 4. The Draft EIR/S notes at page 3E-11 that boaters docked at the DW Project facilities will use pumpout stations open to the public located on Bethel Island and other Delta Islands. No such stations exist on Bethel Island.

There are no boating-related sewage treatment and pumpout facilities "open to the public" located on Bethel Island. (Bethel Island is served by the District.) Existing marina operators pay a user fee to the District based on these operators providing pump-out services only to their tenants. In order to avoid creating a situation in which it would be difficult, if not impossible, for the District to regulate and collect a fee for this service if it were provided to non-tenant boaters, the Project should work with the District, and any other interested wastewater treatment providers, to develop pumpout stations which are open to public and easy for the District to regulate and ensure it is

C15-10

C15-11

C15-12

receiving a fee for pumpout services provided to boaters docked at the DW Project facilities.

C15-12 cont'd

C15-13

<u>COMMENT 5. Would the Delta Environment Science Center (DESC) be eligible to receive funding from the DW Environmental Research Fund?</u>

The DEIR/S at page 2-9 describes the DW Environmental Research Fund, which would contribute \$2 per acre-foot of water sold for Delta export to a research fund established to sponsor research work. The attached FEIR at Section 2.5, beginning at page 2-18, describes the Delta Environment Science Center ("DESC"), which will be developed on District land provided to a coalition of local governments, educational institutions and environmental organizations. It seems that the research activities which are planned for the DESC would be eligible for funding from this Research Fund. Is this correct? If so, what would be the likely level of annual funding made available by the Research Fund, and what percentage of this annual funding could be made available to the DESC?

In closing, thank you for the opportunity to comment on the Draft EIR/S. I am looking forward to your responses to the District's comments.

Very truly yours,

David N. Bauer,

District Manager

Encl: FEIR: IRONHOUSE SANITARY DISTRICT WASTEWATER FACILITIES PLAN & DELTA ENVIRONMENT SCIENCE CENTER, October, 1994.

IR000435.ISD 21/61/01

# FINAL ENVIRONMENTAL IMPACT REPORT

# IRONHOUSE SANITARY DISTRICT WASTEWATER FACILITIES PLAN & DELTA ENVIRONMENT SCIENCE CENTER

- 1. Final Environmental Impact Report Text
- 2. Comments and Responses

October, 1994

SCH# 92093042 (Previously SCH# 91093013)



# **Ironhouse Sanitary District**

- C15-1. This information on future uses of land on Jersey Island has been noted. Discharges of the Ironhouse Sanitary District wastewater facilities into the San Joaquin River would be required to comply with all applicable water quality standards, and the district uses would not affect overall water supply in the Delta. Because Ironhouse Sanitary District's uses would not affect the quality or quantity of Delta water supply, the district's Wastewater Facilities Upgrade and Expansion Plan has not been included in the discussion in Appendix 2 of programs and studies that influence the cumulative environment in the Delta.
- C15-2. The Delta Wetlands Project would be required to control groundwater in the vicinity of the project islands to ensure that seepage from the Delta Wetlands reservoir islands would not result in a significant impact. Refer to Chapter 6 and Appendix H of the 2000 REIR/EIS for a quantitative analysis of the potential seepage effects of the Delta Wetlands Project. Because the project's potential seepage would be controlled, the groundwater levels southwest of Webb Tract would not change substantially. Additionally, any minor change in groundwater levels attributable to the project would likely be negligible on Jersey Island because Little Franks Tract, which is between Jersey Island and Webb Tract, is already submerged and is recharging the aquifer. With the interceptor well system in place on Webb Tract as proposed, the Delta Wetlands Project would not affect Jersey Island groundwater levels or the sanitary district's ability to use Jersey Island as proposed.
- **C15-3.** Appendix H, "Levee Stability and Seepage Technical Report", of the 2000 REIR/EIS presents an analysis of the potential seepage impacts of Delta Wetlands reservoir operations and an evaluation of the effectiveness of the proposed seepage performance standards.
- C15-4. No groundwater data have been collected on Jersey Island to date. Jersey Island was not included in the earlier seepage monitoring plans because, as described above, it is reasonably remote from Webb Tract with respect to seepage risk. Also, both Bradford Island and Bethel Island have broad levee reaches much closer to the southwest corner of Webb Tract, and if water were seeping southwest from Webb Tract toward Jersey Island, monitoring on Bradford and Bethel Islands would readily detect it.
- **C15-5.** See response to Comment C15-2 above.
- **C15-6.** Because the project would not have a significant effect on groundwater on Jersey Island, no mitigation or remedial measures are required to be included as part of the environmental document. See response to comment C15-2.

Delta Wetlands and EBMUD submitted a protest dismissal agreement to the SWRCB during the water right hearing. The agreement outlines a dispute resolution process that neighboring landowners could use to identify and remedy levee, seepage, and related problems that may be attributable to the Delta Wetlands Project. The SWRCB included

some of the terms of the protest dismissal agreement in the terms and conditions of Delta Wetlands' water right permit.

C15-7. The installation of relief wells would not adversely affect the stability of neighboring island levees. Relief wells are a common solution for controlling seepage at toes of dams and levees. USACE and reclamation district engineers have used relief wells to control seepage at the toe of levees in the Delta, along the Feather River, and in the Mississippi River basin. The use of relief wells and pumped well systems are described further in the following publications:

Cedergren, H. Seepage, drainage, and flow nets. John Wiley & Sons. New York. 1967. Pp. 242-247, 259-261, and 266-276.

Joint Departments of the Army, Air Force, and the Navy, USA, technical manual TM 5-818-5/AFM 88-5, Chapter 6/NAVFAC P-418, "Dewatering and Groundwater Control".

U.S. Department of the Army. 1978. Design and construction of levees. Engineer manual EM 1110-2-1913. Chapter 5, pp. 6-11; Appendix D—Relief well installation.

\_\_\_\_\_\_. 1992. Design, construction, and maintenance of relief wells. Engineering Manual EM 1110-2-1914.

Relief wells can help reduce levee instability as subsidence continues because the wells could be operated to control groundwater levels beneath portions of the islands and the adjacent levees. As the interior of the island subsides, the head differential between the adjacent channel and the island interior would increase, resulting in greater pressure that could cause water to seep beneath or through the levees regardless of Delta Wetlands Project operations. Therefore, adjacent landowners could operate the relief wells on their islands to reduce seepage from adjacent channels as the island interiors subside.

It should be noted that the use of relief wells is not part of the proposed project as described in the 1995 DEIR/EIS and 2000 REIR/EIS, but is a potential alternative to using an interceptor well system to control seepage. However, installation of relief wells would require easements or access from neighboring island landowners.

**C15-8.** Geotechnical engineers would make up the technical advisory committee that provides input on the seepage performance standards. A geotechnical engineer representing the Ironhouse Sanitation District would be eligible to participate on the advisory committee.

The protest dismissal agreement entered into by Delta Wetlands and EBMUD proposes more details about the structure and duties of a technical review committee, identified in the agreement as the "Reservoir Island Monitoring and Action Board". As described above, the SWRCB included some of the terms of the protest dismissal agreement in the terms and conditions of the Delta Wetlands water right permit.

- **C15-9.** See response to Comment C15-4 above.
- C15-10. Appendix H, "Levee Stability and Seepage Technical Report", of the 2000 REIR/EIS presents an analysis of the potential seepage impacts of Delta Wetlands reservoir operations and an evaluation of the effectiveness of the proposed seepage performance standards. Based on this analysis, a new mitigation measure is recommended to improve the proposed seepage control system and reduce potential impacts of the project to a less-than-significant level. See Chapter 6 of the 2000 REIR/EIS. As on Jersey Island, seepage from Webb Tract to Bethel Island would likely be negligible; Franks Tract and Little Franks Tract, which are between Bethel Island and Webb Tract, are already submerged and are recharging the aquifer. Because Hotchkiss Tract is relatively far from the proposed reservoir islands (see Figure 3D-3), water storage on Webb Tract is expected to have no effect on groundwater levels at Hotchkiss Tract. The piezometers on Hotchkiss Tract would be used to establish background head levels as described in Chapter 3D of the 1995 DEIR/EIS.
- C15-11. The proposed Delta Wetlands Project would not flood Holland Tract (refer to the description of Alternatives 1 and 2 in Chapter 2 of the 1995 DEIR/EIS). The collection pipeline is outside the HMP area, so it would not be affected by activities associated with the proposed project. The 1995 DEIR/EIS also analyzes the environmental effects of a four-reservoir-island alternative (refer to the description of Alternative 3 in Chapter 2 of the 1995 DEIR/EIS). The commenter has not provided enough detail to determine whether flooding Holland Tract would adversely affect its unused collection pipeline. However, it is highly unlikely that the lead agencies would permit Alternative 3. See also the "Project Alternatives" section in Chapter 2 of the 2000 REIR/EIS.
- C15-12. As shown in Figure 3E-4 in Chapter 3E, "Utilities and Highways", of the 1995 DEIR/EIS, pumpout facilities are available in the vicinity of all four project islands and in other areas of the Delta. Boaters using Delta Wetlands Project facilities would use only those pumpout facilities open to the public. The sentence on page 3E-11 that refers to Bethel Island facilities (see page 3E-12 of FEIS Volume 1) has been revised as follows:

Boaters docked at the Delta Wetlands Project facilities would use pumpout stations open to the public on Andrus Island, Empire Tract, Bethel Island, Terminous Tract, or other pumpout stations in the Delta (Figure 3E-4).

See also Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".

C15-13. The amount of funding available through the environmental research fund would vary according to Delta Wetlands' annual water sales. The simulations performed for the 2000 REIR/EIS for Alternative 2, for example, estimated average discharges to export of 114–138 TAF/year; if this amount of water were sold at the price of \$200 per acre-foot used in the 1995 DEIR/EIS estimates, an average of \$228,000–\$276,000 per year would be contributed to research through the environmental research fund. As described on

page 2-9 of the 1995 DEIR/EIS (page 2-11 of FEIS Volume 1), the allocation of those funds would be under the direction of Delta Wetlands and a research committee. The research committee would serve as a "grants committee" that would determine where monies would be spent. It would be made up of representatives from DFG, USFWS, NMFS, the SWRCB, Delta Wetlands, fishery-oriented and waterfowl-oriented organizations, and one general environmental organization.

# RECLAMATION DISTRICT NO. 830

P. O. Box 1105 Oakley, CA 94561-1105 (510) 625-2279 fax (510) 625-0169

December 21, 1995

State Water Resources Control Board Division of Water Rights Attention: Jim Sutton P.O. Box 2000 Sacramento, CA 95812-2000

U.S. Army Corps of Engineers Regulatory Branch Attention: Jim Monroe 1324 J Street, Room 1444 Sacramento, CA 95814-2922

RE: Comments on Delta Wetlands Draft EIR/S

# Gentlemen:

Thank you for the opportunity to comment on the Delta Wetlands Draft Environmental Impact Report/Statement. Reclamation District 830 ("RD 830) is located on Jersey Island. The District has the following comments on the Draft EIR/S, each of which is numbered to assist you in responding to them. Please feel free to contact me directly if you have any questions concerning any of my comments.

COMMENT 1. How will the Project mitigate the impacts on Jersey Island Road of the additional automobile traffic which will be generated by the development of recreational facilities along the perimeter levees on Webb Tract? Jersey Island Road is the exclusive means of vehicular access from

C16-1

the mainland to Webb Tract via the Delta Ferry Authority. This road runs from East Cypress Road to the ferry slip, a distance of six miles.

The DEIR/S at page 2-9 states that "DW proposes to construct a maximum of 11 recreation facilities on each of these [four] islands along the perimeter levees .... Each recreation facility ... would include living quarters with a maximum of 40 bedrooms, a 30-berth floating dock ..., a 36 berth floating dock on the interior of the island ..., and a 40-car parking lot located along the levee crest access road." For each DW island, including Webb Tract, this equates to a potential maximum of 440 bedrooms, 726 berths at floating docks and parking for 440 cars.

Jersey Island Road provides the exclusive vehicular access from the mainland to Webb Tract. It is reasonable to expect that the present level of vehicular use of Jersey Island Road will increase substantially due the above increases in recreation facilities on Webb Tract. This increase will more than offset any reduction in ferry traffic caused by the cessation of farming operations on Webb Tract (Draft EIR/S at page 3E-7), resulting in a substantial net increase. This impact will be a substantial, adverse impact of the DW Project.

The Final EIR/S should analyze these traffic impacts in terms of an appropriate traffic impact measure, such as average daily traffic level, and how these traffic impacts will affect the existing condition of Jersey Island Road, traffic safety along the road and other pertinent factors. This traffic impact analysis should propose appropriate mitigation measures, including the capital improvements required to bring existing Jersey Island Road up to the standard required to serve this increased traffic level, as well as measures to provide for long-term maintenance.

Also note that Contra Costa County has installed a locked gate on Jersey Island Road at approximately three miles south of the ferry slip in order to close the road to all but local traffic. The Draft EIR/S should address whether Jersey Island Road will remain open to Webb Tract recreational traffic and the means by which this traffic will obtain a key to open the gate.

C16-1 cont'd

All mitigation measures should include provision for their funding by the DW Project.

C16-1 cont'd

<u>COMMENT 2.</u> How will the Project mitigate the impacts of increased vehicular traffic on the approximately three miles of Jersey Island levee with the Jersey Island Road on its crown?

Please see COMMENT 1. Approximately three miles of the Jersey Island Road are located on the crest of the Jersey Island levee. Like most Delta, levees, this one is subsiding gradually over time, and accordingly needs periodic raising and strengthening. (In its present condition, the levee does not meet any of the standards for a levee for agricultural purposes, whether the standards are those of FEMA, Corps of Engineers (PL 99), or DWR; the road's surface is at an elevation of two feet below the 100 year flood. Each time the levee is raised, the paved portion of Jersey Island Road along the levee's crown is covered, and must be rebuilt at significant expense. Also, the increased traffic along Jersey Island Road will potentially contribute to the instability of the levee and increase its maintenance costs. The Final EIR/S should analyze how these increased traffic impacts will affect the existing condition of this portion of the Jersey Island levee and propose appropriate mitigation measures. The Final EIR/S should also consider several alternatives, including (1) relocating the ferry serving Webb Tract from the end of Jersey Island Road to a different location (possibly to Bethel Island, Sherman Island or near the Antioch Bridge); and (2) significant additional strengthening, raising and widening of the three miles of Jersey Island levee with the road, to prolong the levee's life and thereby lengthen the period before the levee will need to be raised and the road rebuilt.

All mitigation measures should include a provision for their funding by the DW Project.

COMMENT 3. How will the Project mitigate the impacts on the Jersey Island levees of the increased wave action from the increased recreational boating activity around Jersey Island resulting from the development of substantial

C16-2

C16-3

new recreational boating facilities along the perimeter levees of all four DW project islands?

The DEIR/S, at page 3J-14, estimates that the DW Project "would result in a net increase of 100,620 annual boater use-days at project build out. This increase represents a 5% increase over existing boater-use days in the Delta." This 5% increase is the average for the entire Delta. Will be the estimated increase in boating activity around Jersey Island be greater than 5%? Increased recreational boating activity around Jersey Island will adversely impact the Island's levees through increased wave action. What will be the impact of this increased wave action on the stability of the Jersey Island levees, and how does the Project propose to mitigate any impacts?

COMMENT 4. The DEIR/S at page 3A-11 states that "DW project operations would not be permitted to interfere with senior appropriative water right holders or Delta riparian users." As the holder of a senior appropriative right, RD 830 supports this policy.

In closing, thank you for the opportunity to comment on the Draft EIR/S. I am looking forward to your responses to RD 830's comments.

Very truly yours,

బ్డి/ David N. Bauer, President

**Board of Trustees** 

Encl: FEIR: IRONHOUSE SANITARY DISTRICT WASTEWATER FACILITIES PLAN & DELTA ENVIRONMENT SCIENCE CENTER, October. 1994.

C16-3 cont'd

#### **Reclamation District No. 830**

C16-1. Based on estimated recreation use-days under Alternative 1 (see Chapter 3J), the daily average number of people using the ferry is expected to increase. As indicated in Chapter 3L, "Traffic and Navigation", recreational vehicle trips are expected to increase traffic on Delta roadways during project operations. The commenter is correct in noting that implementing the Delta Wetlands Project would increase traffic on Jersey Island Road compared to existing conditions. The increase in traffic on Delta roadways during project operation is identified as a significant and unavoidable impact (see Impact L-2 on page 3L-10 of FEIS Volume 1).

An analysis of traffic volumes on Jersey Island Road under the proposed Delta Wetlands Project has been conducted. Based on that analysis, LOS would be reduced from A to B on Jersey Island Road north of Dutch Slough Road. The following sentence has been added to the second paragraph under "Operation Impacts" (see page 3L-6 of FEIS Volume 1) which describes the impact assessment methodology used to evaluate project effects on roadway traffic:

<u>For Jersey Island Road, LOS was calculated using an assumed capacity of 500 cars per hour to determine the V/C ratio.</u>

The discussion of changes in LOS under "Impact L-2: Increase in Traffic on Delta Roadways during Project Operation", has been revised as follows (see page 3L-11 of FEIS Volume 1):

Additionally, LOS would be reduced by a letter grade, from E to F, on SR 4 south of Cypress Road; and from A to B, on Jersey Island Road north of Dutch Slough Road.

Results of the Jersey Island Road traffic analysis are shown in revised Tables 3L-2, 3L-6, 3L-7, and 3L-8, which follow this response. These tables are included in Chapter 3L of FEIS Volume 1.

It should be noted that the results of the Jersey Island Road traffic analysis described here are based on the predicted traffic calculated for the recreational facilities as proposed in 1995. Since then, the lead agencies and Delta Wetlands have proposed mitigation to reduce the use of the facilities and reduce the corresponding amount of traffic. Additionally, Delta Wetlands has removed construction of the recreation facilities from its CWA permit applications. These changes are described in Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".

The gate on Jersey Island Road prevents all but local traffic from passing through to the ferry terminal. As described in Chapter 3L, the recreational facilities on Webb Tract would not be open for public use. Therefore, guests to those facilities would be registered before

Table 3L-2. Existing Traffic Volumes on Roadways in the Project Vicinity

Location	Average Daily Traffic	Peak-Hour Volume		
Bacon Island				
Bacon Island Road at the Bacon Island Road bridge				
	550	55		
Lower Jones Road north of Cook Road	300	30		
SR 4 east of Tracy Boulevard	5,900	725		
Webb Tract				
Jersey Island Road north of Dutch Slough Road	<u>200</u>	<u>20</u>		
Cypress Road west of Jersey Island Road	$6,\overline{917}$	<u>20</u> 591		
SR 4 south of Cypress Road	11,800	1,400		
Bouldin Island				
SR 12 west of Terminous	12,200	1,300		
Holland Tract				
Delta Road east of Byron Highway	537	60		
SR 4 south of Delta Road	13,000	1,600		

Note: These are actual volumes supplied by the sources listed below.

Sources: Caltrans 1988; Chalk, Redic, and Chahal pers. comms.

Table 3L-6. Projected 2010 Traffic Volumes on Roadways near the Delta Wetlands Project Islands with and without the Project

			Future with Project				
	Future without Project		Construction		Operation		
Location	Average Daily Traffic	Peak- Hour Volume	Alternative 1 or 2	Alternative 3	Alternative 1 or 2	Alternative 3	No-Project Alternative
Bacon Island							
Bacon Island Road at the Bacon Island Road bridge	2,336	234	241	241	290	290	257
Lower Jones Road north of Cook Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SR 4 east of Tracy Boulevard	9,000	1,100	1,109	1,114	1,171	1,177	1,127
Webb Tract							
Jersey Island Road north of Dutch Slough Road	<u>200</u>	<u>20</u>	<u>26</u>	<u>26</u>	<u>75</u>	<u>75</u>	<u>39</u>
Cypress Road west of Jersey Island Road	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SR 4 south of Cypress Road	24,164	2,732	2,741	2,746	2,803	2,809	2,759
Bouldin Island							
SR 12 west of Terminous	24,000	2,900	2,903	2,916	2,949	2,950	2,920
Holland Tract							
Delta Road east of Byron Highway	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SR 4 south of Delta Road	21,013	2,838	2,847	2,852	2,909	2,915	2,865

Notes: N/A = not available.

Operational volumes are equal to without-project volumes plus the estimated number of trips generated by the proposed project under the worst-case assumption that recreation, operations and maintenance, and agricultural traffic would all travel during the same peak hour.

Source: Holland Tract and Webb Tract future without-project volumes from Johnson pers. comm.; Bacon and Bouldin Island future without-project volumes from Reed and Chalk pers. comms.

<sup>&</sup>lt;sup>a</sup> The No-Project Alternative includes increased agricultural and recreational activities compared with existing conditions.

Table 3L-7. Projected Volume-to-Capacity Ratios and Levels of Service on Roadways near the Delta Wetlands Project Islands, with Existing Roadway Configuration, with and without the Project

	Future with Project					
		Construction				
Location	Future without Project	Alternative 1 or 2	Alternative 3	Alternative 1 or 2	Alternative 3	No-Project Alternative
Bacon Island						
Bacon Island Road at the Bacon Island Road bridge	0.08 (A)	0.09 (A)	0.09 (A)	0.10 (A)	0.10 (A)	0.09 (A)
Lower Jones Road north of Cook Road	N/A	N/A	N/A	N/A	N/A	N/A
SR 4 east of Tracy Boulevard	0.56 (D)	0.57 (D)	0.57 (D)	0.60 (D)	0.60 (D)	0.57 (D)
Webb Tract						
Jersey Island Road north of Dutch Slough	<u>0.04(A)</u>	<u>0.05(A)</u>	<u>0.05(A)</u>	<u>0.15(B)</u>	<u>0.15(B)</u>	<u>0.08(A)</u>
Cypress Road west of Jersey Island Road	N/A	N/A	N/A	N/A	N/A	N/A
SR 4 south of Cypress Road	0.98 (E)	0.98 (E)	0.98 (E)	1.00 (F)	1.00 (F)	0.99 (E)
<b>Bouldin Island</b>						
SR 12 west of Terminous	1.29 (F)	1.29 (F)	1.30 (F)	1.31 (F)	1.31 (F)	1.30 (F)
Holland Tract						
Delta Road east of Byron Highway	N/A	N/A	N/A	N/A	N/A	N/A
SR 4 south of Delta Road	1.01 (F)	1.02 (F)	1.02 (F)	1.04 (F)	1.04 (F)	1.02 (F)

Notes: N/A = not available.

Numbers in table represent volume-to-capacity ratio. Letters in parentheses represent the corresponding level of service.

These estimates are based on the future traffic volumes with and without the proposed project shown in Table 3L-5 using the existing road facilities.

Source: Information on SR 4 east of Tracy Boulevard and SR 12 from Chalk pers. comm. Information on other segments estimated based on Tables 3L-5 and 3L-3.

Table 3L-8. Projected Volume-to-Capacity Ratios and Levels of Service on Roadways near the Delta Wetlands Project Islands, with Improved Roadway Configuration, with and without the Project

	Future with Project					
		Construction				
Location	Future without Project	Alternative 1 or 2	Alternative 3	Alternative 1 or 2	Alternative 3	No-Project Alternative
Bacon Island						
Bacon Island Road at the Bacon Island Road bridge	0.08 (A)	0.09 (A)	0.09 (A)	0.10 (A)	0.10 (A)	0.09 (A)
Lower Jones Road north of Cook Road	N/A	N/A	N/A	N/A	N/A	N/A
SR 4 east of Tracy Boulevard	0.54 (C/D)	0.54 (C/D)	0.55 (C/D)	0.57 (C/D)	0.58 (C/D)	0.55 (C/D)
Webb Tract						
Jersey Island Road north of Dutch Slough Road	<u>0.04(A)</u>	<u>0.05(A)</u>	<u>0.05(A)</u>	<u>0.15(B)</u>	<u>0.15(B)</u>	<u>0.08(A)</u>
Cypress Road west of Jersey Island Road	N/A	N/A	N/A	N/A	N/A	N/A
SR 4 south of Cypress Road	0.49 (D)	0.49 (D)	0.49 (D)	0.50 (D)	0.50 (D)	0.50 (D)
<b>Bouldin Island</b>						
SR 12 west of Terminous	0.48 (B)	0.48 (B)	0.49 (B)	0.49 (B)	0.49 (B)	0.49 (B)
Holland Tract						
Delta Road east of Byron Highway	N/A	N/A	N/A	N/A	N/A	N/A
SR 4 south of Delta Road	0.51 (D)	0.51 (D)	0.51 (D)	0.52 (D)	0.52 (D)	0.51 (D)

Notes: N/A = not available.

Numbers in table represent volume-to-capacity ratio. Letters in parentheses represent the corresponding level of service.

These estimates are based on the future traffic volumes with and without the proposed project shown in Table 3L-5 using the improved roadway configuration.

Improvement to four lanes on SR 12 west of Terminous, SR 4 south of Delta Road, and SR 4 south of Cypress Road are Caltrans concepts but are not currently programmed or funded.

Full widening has not been planned for SR 4 east of Tracy Boulevard; however, Caltrans has proposed constructing passing lanes at selected locations and new bridges at Old and Middle Rivers (west of Tracy Boulevard).

 $Source: \quad Information \ on \ SR\ 4\ east\ of\ Tracy\ Boulevard\ and\ SR\ 12\ from\ Chalk\ pers.\ comm.\ Information\ on\ other\ segments\ estimated\ based\ on\ Tables\ 3L-5\ and\ 3L-3.$ 

- their arrival and the recreation facility operators would arrange access through the gate for those guests.
- **C16-2.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".
- **C16-3.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".

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December 21, 1995

#### HAND DELIVERED

State Water Resources Control Board Division of Water Rights Attention: Jim Sutton 901 P Street Sacramento, California 95814

U.S. Army Corps of Engineers Regulatory Branch Attention: Jim Monroe 1325 J Street, Room 1444 Sacramento, California 95814-2922

Re: Draft Environmental Impact Report and Environmental Impact Statement for the Delta Wetlands Project

#### Gentlemen:

These comments are submitted on behalf of the following protesting parties: Central Delta Water Agency, Reclamation District No. 38, M & T Inc., Reclamation District No. 2027, CCRC Farms, Reclamation District No. 2036, Douglas Morris, Inc., Reclamation District No. 2038 and Reclamation District No. 2072.

Attached hereto and incorporated herein by this reference please find copies of our September 29, 1993, letter to the State Water Resources Control Board and the attachment to our 1988 protests which outline our general concerns.

Our primary concerns continue to be the flood and seepage related threats to surrounding lands and islands.

The Draft EIR/EIS improperly concludes that levee safety on the Delta Wetlands islands will increase and therefore the cumulative flood hazard in the Delta will be reduced. The assumption is made that as subsidence of peat soil continues the factor of safety of existing levees will be reduced. The reclamation districts in the Delta are constantly repairing and rehabilitating their levees to maintain and in most cases increase the factor of safety of the levees. Typically, the landside slopes are flattened or buttressed with landside berms. Incorporated into the "SB-34" State Levee Subvention Program is a mechanism for establishing 400 foot wide easements to control subsidence in peat areas adjacent to levees. There is also a

C17-1

trend toward wetland development which could significantly reduce subsidence in peat areas. The conclusion that without project conditions will result in a substantially degrading factor of safety is unsupportable.

C17-1 cont'd

The factors of safety of the levees on the Delta Wetlands reservoir and habitat islands have already been improved. additional improvement contemplated by the project will in our view be offset by the detriment associated with filling the reservoir islands with water. Once the land surface is covered with water, the subsidence benefit is achieved. The reservoir component of the project simply adds detriment without corresponding benefit. Although the damage to the Delta Wetlands reservoir island improved levees from a flood event could be reduced, the seepage impact and potential windwave impacts to adjoining island levees create an increased risk. With the proposed Delta Wetlands reservoir island water level of +6, the chance of wind-generated waves overtopping the Delta Wetlands The draft talks about hardening the levee island levees is real. crown but does not adequately analyze how they will be hardened or the impacts to adjoining islands or to the Delta Wetlands island levees and roadways thereon. Wind-generated waves could result in a wave water height or run up in the magnitude of 6 or The Delta Wetlands island levees could be eroded such that the wind-generated wave could impact adjoining islands. a Delta Wetlands Reservoir was already full at the time of the flood event, the risk to adjoining islands would be substantially increased over the no project alternative. Under a no project condition, the levee would fail during the flood event then the island would fill during 24 hour period thereafter to an elevation less than the +6 feet proposed reservoir level thereby presenting a reduced threat from wind-generated waves.

C17-2

The draft assumes that the seepage mitigation plan of installation of interceptor wells will eliminate the seepage impact on adjoining lands and islands. Although such interceptor wells appear to have the potential for intercepting the seepage, the effectiveness of such a plan on the large scale required for the proposed project has not been demonstrated. The draft fails to analyze the costs associated with the required mitigation and the funding of the same. The draft at page 3D-10 references other technically feasible seepage control measures but fails to analyze the costs and impacts of the same.

C17-3

The seepage performance standards specified at 3D-9 of the draft would allow for increased seepage into adjoining islands and lands during much of the year. The draft assumes no increased seepage and totally fails to analyze the potential impacts. We have been working with Delta Wetlands to improve the seepage performance standards to minimize the amount of seepage

C17-4

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tolerated as a part of a fair performance standard. The standard outlined in the draft would allow up to 2.25 feet of increased seepage during much of the year which would be very damaging. The draft should analyze the impacts resulting from a reasonable range of possible seepage increases due to the tolerance within the performance standards.

C17-4 cont'd

The draft does not appear to address the possible changes in velocity of the water in the channels adjacent to adjoining island levees due to the filling or discharge from the Delta Wetlands reservoirs. Experience with dewatering flooded islands has shown that in some cases it has been necessary to add wave wash protection on the adjoining island levees directly opposite the discharge pumps.

C17-5

The proposed excavation below the ground surface within 400 feet of the levee is ill advised. AT page 3D-11, the draft provides for 2000 feet inward from the final toe of an improved levee where seepage restrictions will be required. Since the seepage areas cannot be adequately identified prior to filling of the reservoir or prior to prolonged operation, the 2000 foot setback should be applied to all borrow sites.

C17-6

In our view, the Webb Tract reservoir is likely to significantly adversely affect Bradford Island and Mandeville Island. The Bacon Island reservoir is likely to significantly adversely affect Quimby Island, Mandeville Island, Lower Jones Tract, Upper Jones Tract, Woodward Island, Orwood Tract, Palm Tract, Holland Tract and probably McDonald Tract.

C17-7

Because of the significant risk to other islands and the importance of maintaining the levee systems in the Delta, the effectiveness of the mitigation measures for the Delta Wetlands project is of immeasurable importance. To assure that mitigation measures can be carried out, we believe that an adequate security deposit should be required to ensure that corrective action can be taken in the event the Delta Wetlands project proves to be financially unsuccessful and/or is operated in a careless manner.

C17-8

Another area of concern not addressed in the draft is the possible use of the Delta Wetlands islands for storage and/or disposal of wastewater and biosolids (sewage sludge). The Bay Area Recycled Water program has specifically identified Webb and Bacon Islands as potential wastewater storage sites. The risk of contamination of the Delta waters and the impact on water users throughout the State is a major concern.

The Central Delta Water Agency has been working with the Delta Wetlands project proponents to resolve an appropriate mitigation agreement. Although there has been progress, a couple

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of items of major difference remain. Continued effort to resolve the differences is anticipated.

Yours very truly,

DANTE JOHN NOMELLINI Attorney for Protestants

DJN:ju Enclosures

cc: CDWA

RD No. 38 M & T Inc. RD No. 2027 CCRC Farms RD No. 2036

Douglas Morris, Inc.

RD No. 2038 RD No. 2072

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PROFESSIONAL LAW CORPORATION

September 29, 1993

State Water Resources Control Board Division of Water Rights c/o Dave Cornelius P. O. Box 2000 Sacramento, California 95812-2000

Re: Delta Wetlands
New Applications 30267, 30268, 30269 and 30270
Petitions to Change Applications 29061, 29062,
29063 and 29066

Dear Sir:

On or about January 21, 1988, Reclamation District No. 2072 filed protests to Applications 29061, 29062, 29063 and 19066 based on both injury to vested water rights and environmental, etc. considerations. Please accept this letter as an amendment to such protests and as a protest to such new applications and the petitions to change the old applications.

The proposed increased period of diversion will increase the potential for conflict with existing water right holders. There is generally no water available for appropriation during the period of June through October 15 and to grant a diversion right during this period will surely lead to future conflict. The proposal to discharge from one proposed reservoir for rediversion to another reservoir during this period should also not be allowed as the potential for abuse and conflict is too great.

The proposals to increase the elevation of storage within the reservoirs and have storage year round greatly increase the threats due to seepage into the levee foundations and farmland on adjoining islands and increase the threat of reservoir island levee failure. The increased head will be a greater driving force on the seepage flows and will increase the forces which could lead to reservoir levee failures in the direction of the surrounding channels during low or minus tides. The increased reservoir elevation will also increase the threat of overtopping due to wind driven waves. In many cases, such overtopping could lead to erosion of the levee section and failure of the levee.

C17-9

C17-10

The opportunity to propagate seed crops for food for wintering waterfowl depends upon the reservoir being dry or very shallow during the growing season. If water is actually stored year round, this opportunity will be eliminated.

C17-11

Increases in diversions from the Delta are unjustifiable. Delta water quality standards are clearly inadequate to protect the beneficial uses and public trust values within the Delta and increased diversions will only exacerbate the problem. Additionally, diversions to irrigate lands along the west side of the San Joaquin River watershed will further degrade the already degraded San Joaquin River flows.

C17-12

To avoid restatement of our previous protests, we hereby incorporate by reference the allegations contained therein as if fully set forth herein.

Yours very truly,

DANTE JOHN NOMELLINI Attorney for Reclamation

District No. 2072

DJN:ju

cc: Delta Wetlands

c/o John L. Winther, President 3697 Mt. Diablo Blvd., Suite 120

Lafayette, CA 94549

Trustees of RD 2072

1. Protestant is concerned that seepage from the proposed reservoirs may adversely affect the levee integrity of adjacent islands and destroy the farmability of the lands on adjacent islands.

As has been demonstrated on numerous occasions when delta islands have flooded due to natural causes seepage has occurred along portions of the levee system and in some of the fields on adjacent islands. The degree and extent is difficult to predict, however, correction of the seepage problem is technically difficult and extremely costly.

Once the reservoir is filled the unprotected landside levee 2. slopes will be exposed to erosive forces including wind generated waves. The levee system could then be severely damaged or breached to the extent that the island cannot be reclaimed without a tremendous expense. State and Federal disaster assistance may not be available in which event the island could be lost. Permanent flooding would result in evaporative losses of fresh water which would exceed the losses resulting from farming by at least 2 acre ft. per Additionally the failure of the levees from the inside could result in a domino impact on adjoining islands as wind generated waves over long fetches are allowed to impact the levees of adjacent islands. These same waves could result in destruction of the riparian habitat on the adjacent channel islands and the loss of recreational value associated with the protected meandering channels of the delta.

The seepage impact which with the proposed reservoir operative would be approximately six months out of the year would with the island permanently flooded then be year around.

- 3. We are informed that the plan entails building 10 to 1 landside slopes by hydraulicly dredging soil from within the island. Once the soil is taken from the interior of the island to build the landside slopes of the reservoir the land from which the soil is taken will be extremely difficult to reclaim. To the extent organic material is encountered it will be lost. If the project proves unsuccessful what will be the resulting condition of the land?
- 4. Is there sufficient surplus flows to allow the applicant to operate as proposed without encroaching on the rights of others? The operations of the federal Central Valley Project and State Water Project as well as the Bay/Delta environment depend heavily on the existence of unregulated flow. It would appear that in dry, critical and perhaps below normal years there is no surplus water to be diverted in March or April. If the project is not economically sound it will fail and only the damage will remain. Additionally, over subscription of limited supplies will tend to result in

C17-13

C17-14

C17-15

C17-16

unlawful encroachment on the rights of others and enforcement problems.

5. The applicant seeks a rate of diversion of 3000 cfs. for the Bouldin Island reservoir, 5000 cfs for the Webb Tract reservoir, 3000 cfs for the Holland Reservoir, and 5000 cfs for the Bacon Island reservoir. The combined diversion could be 18,000 cfs. The diversions individually or in combination could induce or aggravate salinity intrusion and could result in water level drawdowns detrimental to other diverters and to the environment including the fisheries.

6. Winter waterfowl habitat would be substantially degraded and probably lost. Delta farmland presently provides winter habitat to hundreds of thousands of migrating waterfowl. The waterfowl feed on the grain left behind after harvest and various naturally occurring seeds. The applicant has requested a diversion period of December 15, to May 1. If the reservoir was presumably emptied by the end of June there would be very little time for a feed crop to be planted and mature. It is doubtful that much of the ground within the reservoir would be dry enough to sustain seed planting and germination. Whether or not aquatic type vegetation can provide comparable or adequate feed is not clear.

- 7. The spring nesting habitat for waterfowl and upland game provided on the island will be inundated. The shoreline habitat which might develop along the levee with all the disturbances of boating traffic in the waterway and vehicles traveling on the levee road will be of questionable quality and substantially reduced in acreage.
- 8. Destruction of the farmland within the island will result in the loss of jobs, the loss of equipment service and sales and the loss of sales of seed, fertilizer and other supplies. The loss of the economy generated by the agricultural activities does not appear to be replaceable by way of reservoir operation.
- 9. Flooding of the islands to differing degrees could jeopardize the integrity and safety of the various road and highway systems as well as various utilities.
- 10. The intentional flooding of four (4) major delta islands constitutes a major gamble with the water rights, flood control integrity and environment of the Bay/Delta estuarine system. Such a bold step should not be taken. With careful evaluation and satisfactory safeguards perhaps one island could be considered for experimental reservoir operation. In such event an acceptable plan should be prepared for restoration of the island to farming in the event the reservoir operation results in problems with the levees, seepage, environment or water rights of others.

C17-16 cont'd

C17-17

C17-18

C17-19

C17-20

C17-20 cont'd

There should be a bonded commitment by the developer to restore the island to farming within a specified period of time after determination by the SWRCB or some other appropriate body (or arbitrator) that there are unresolved problems with regard to water rights, levees, seepage or the environment. Revocation of a permit of this type after the damage is done is not a satisfactory remedy. Based on the historical costs associated with restoration of flooded islands the bond amount would have to be in the 10 to 20 million dollar range depending upon the island in question and the degree of land destruction resulting from construction of the reservoir levees. The amount of the bond could be subject to review and adjustment on an annual basis so as to reflect demonstrated reductions or increases in the A bond should also be estimated costs of restoration. posted to cover the cost necessary to cut off seepage. cost of construction of a bentonite curtain or some other appropriate corrective action would be the basis determining the amount of such a bond. An arbitrator or panel of arbitrators should be chosen in advance of the reservoir filling. The arbitrator(s) would then be asked to ascertain and quantify the pre-reservoir filling seepage. After filling the arbitrator(s) would determine whether or not additional seepage was caused by the filling of the If additional seepage was caused by the filling of the reservoir then the applicant would be required to carry out the corrective action. The bond would assure the performance of the corrective work. If the corrective work failed to stop the additional seepage the applicant would be required to restore the island to farming as set forth above.

If an experiment is to be conducted with flooding an entire island perhaps Mildred Island which is already flooded should be considered.

11. The August 1987 Sacramento-San Joaquin Delta Atlas reflects for the period of 1980-1986 the State and Federal funds expended to repair flood damage. Over 21 million dollars was expended on Webb Tract; over 8 million dollars on Holland Tract, over 4 million on Bouldin Island and about \$600,000.00 on Bacon Island. These substantial public investments to protect the public interests should not be jeopardized. Cautious and careful action is required.

# Central Delta Water Agency et al. (Nomellini, Grilli & McDaniel)

- **C17-1.** Implementing flood control programs such as DWR's Delta water management programs and levee maintenance programs would improve the regional flood control system and reduce flood-related risks to adjacent islands. The beneficial cumulative effects identified in Chapter 3D are the result of implementing these programs in conjunction with the Delta Wetlands Project alternatives.
- C17-2. The commenter is referring to information in the 1995 DEIR/EIS that was replaced by the 2000 REIR/EIS. Appendix H, "Levee Stability and Seepage Technical Report", of the 2000 REIR/EIS presents an analysis of the potential seepage impacts of Delta Wetlands reservoir operations and an evaluation of the stability of the proposed reservoir levees. The analysis of levee stability evaluates wind and wave run-up on the interior of the islands and the effectiveness of the erosion control methods proposed by Delta Wetlands. See Chapter 3D of Volume 1 of this FEIS and Appendix H of the 2000 REIR/EIS for more information; refer also to response to Comment E8-3.
- C17-3. The commenter is referring to information in the 1995 DEIR/EIS that was replaced by the 2000 REIR/EIS. Appendix H, "Levee Stability and Seepage Technical Report", of the 2000 REIR/EIS presents an analysis of the potential seepage impacts of Delta Wetlands reservoir operations and an evaluation of the effectiveness of the proposed seepage performance standards. There is no requirement that the NEPA and CEQA documentation analyze the costs associated with operation of the interceptor well system; Delta Wetlands would be responsible for funding all terms and conditions and mitigation measures adopted as part of any permits issued by USACE and the SWRCB.
- C17-4. The commenter is concerned that the proposed method for deriving seepage performance standards would not take into account seasonal variations in groundwater levels. Appendix H, "Levee Stability and Seepage Technical Report", of the 2000 REIR/EIS presents an analysis of the potential seepage impacts of Delta Wetlands reservoir operations and an evaluation of the effectiveness of the proposed seepage performance standards. The 2000 REIR/EIS impact analysis included the recommendations presented in Appendix H for modifying Delta Wetlands' proposed seepage monitoring program and seepage performance standards as a mitigation measure for potential project impacts.

Additionally, the protest dismissal agreement submitted by Delta Wetlands and EBMUD during the water right hearing proposes a technical review committee, identified in the agreement as the "Reservoir Island Monitoring and Action Board (MAB)". Under the terms of the protest dismissal agreement, the MAB could review and approve changes to the seepage performance standards, including changes or additions to the proposed seepage criteria that could account for the seasonal variation in groundwater levels. The SWRCB included some of the terms of the protest dismissal agreement in the terms and conditions of the Delta Wetlands water right permit.

- C17-5. The impact analysis in Chapter 3B, "Hydrodynamics", of the 1995 DEIR/EIS addressed the effects of Delta Wetlands Project operations on local channel velocities and stages. The analysis found that under maximum diversion and discharges, the maximum channel velocities and stages in channels surrounding the project islands would remain within the range of conditions normally encountered during tidal fluctuations. See response to Comment B5-11 regarding scour effects relative to Delta Wetlands discharges into adjacent channels.
- C17-6. The commenter is referring to information in the 1995 DEIR/EIS that was replaced by the 2000 REIR/EIS. Appendix H, "Levee Stability and Seepage Technical Report", of the 2000 REIR/EIS presents an analysis of the potential seepage impacts of Delta Wetlands reservoir operations, including impacts of borrow sites. See Chapter 3D of Volume 1 of this FEIS and Appendix H of the 2000 REIR/EIS.
- **C17-7.** See response to Comment E8-5.
- **C17-8.** The Delta Wetlands islands are not proposed to be used for the storage and disposal of wastewater and biosolids. Storage of wastewater on Webb Tract and Bacon Island is not compatible with the proposed reservoir island use of the project. Any proposals to dispose wastewater on the Delta Wetlands Project islands would have to be addressed in environmental documents.
- C17-9. Delta Wetlands originally applied for water rights to store water seasonally on all four project islands. The Delta Wetlands Project, as originally proposed, was analyzed in a draft EIR/EIS released in December 1990. During the period between December 1990 and the release of the 1995 DEIR/EIS, Delta Wetlands submitted a revised water application (August 1993) and revised its project description to propose using two islands for water storage and two islands to compensate for wetland and wildlife impacts of the operation of those reservoir islands. Many of the remaining comments in this letter pertain to the previous project description and are not applicable to the 1995 DEIR/EIS.

The 1995 DEIR/EIS and the 2000 REIR/EIS evaluated the availability of water for diversion to the Delta Wetlands islands during all months. Additionally, the FOC terms further restrict Delta Wetlands' ability to divert water (see Chapter 2 of FEIS Volume 1 and Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions"). Despite these restrictions, the simulations performed for the 2000 REIR/EIS analysis show that some water is available during the period referred to by the commenter. The proposal to discharge water from one island for rediversion to another island is no longer part of the proposed Delta Wetlands Project. See Chapter 2 of FEIS Volume 1.

**C17-10.** Appendix H, "Levee Stability and Seepage Technical Report", of the 2000 REIR/EIS presents an analysis of the potential seepage impacts of maximum Delta Wetlands reservoir operations and an evaluation of the stability of the proposed reservoir levees. The analysis of levee stability evaluates wind and wave run-up on the interior of the islands and the

- effectiveness of the erosion control methods proposed by Delta Wetlands. See Chapter 3D of FEIS Volume 1 and Appendix H of the 2000 REIR/EIS for more information.
- **C17-11.** This comment does not apply to the currently proposed Delta Wetlands Project. The reservoir islands are not designed to propagate seed crops. The habitat management on the two habitat islands would fully compensate for habitat lost on the reservoir islands.
- C17-12. The 1995 DEIR/EIS recognizes the delicacy of the Bay-Delta environment and identifies the effects the project would have on biological resources in the Delta (see Chapters 3F, 3G, and 3H). Since this comment letter was written, the SWRCB adopted the 1995 WQCP, which establishes objectives for protecting Delta water quality and beneficial uses. Operation of the Delta Wetlands Project would be consistent with the 1995 WQCP objectives (see Chapter 3A, "Water Supply and Water Project Operations" of FEIS Volume 1. It is not within the scope of the NEPA and CEQA analysis to address the adequacy of the 1995 WQCP and other Delta regulations adopted by USFWS, NMFS, and other federal and state agencies.
- **C17-13.** Appendix H, "Levee Stability and Seepage Technical Report", of the 2000 REIR/EIS presents an analysis of the potential seepage impacts of Delta Wetlands reservoir operations.
- **C17-14.** See responses to Comments C10-2 and E8-3.
- C17-15. This comment does not apply to the currently proposed Delta Wetlands Project. The Delta Wetlands Project does not include the construction of 10:1 landside slopes (see Chapters 2 and 3D and Appendix 2 in the 1995 DEIR/EIS.) Therefore, the amount of borrow material required for the project is substantially less than proposed in 1990. Furthermore, borrow sites would not constitute a substantial proportion of the surface area of the reservoir islands. If the islands are reclaimed for agricultural use in the future, it may not be possible to farm the borrow pit areas because the organic material would have been displaced; it should be noted, however, that any organic material displaced during borrow activities would remain on the project islands.
- **C17-16.** Delta Wetlands Project operations would be prohibited from interfering with operations conducted by the SWP and CVP and other existing holders of prior water rights. It would also be prohibited from affecting the ability of those who hold prior water rights to comply with Delta water quality standards or protection of biological resources.
- C17-17. This comment does not apply to the currently proposed Delta Wetlands Project. Implementing the HMP on habitat islands would compensate for the Delta Wetlands Project's impacts on wildlife. The HMP (Appendix G3) describes in detail compensation for impacts on wintering waterfowl and other species.

C17-18. The analysis presented in Chapter 3K, "Economic Conditions and Effects", concludes that the economic activity generated by the operations and maintenance of project water storage and recreation facilities would offset the reduction in jobs and income caused by the loss of farming on the Delta Wetlands islands. As shown by Table 3K-5, annual direct (i.e., onsite) and secondary (i.e., offsite, regional) employment generated by Alternative 1 would total 415 jobs compared with an estimated 293 jobs under existing (1988) conditions. Similarly, income generated by project operations under Alternative 1 would be higher than income generated by current use of the islands, as shown by Table 3K-6.

Although there would be a net increase in regional economic activity under Alternative 1 (as well as under Alternatives 2 and 3), jobs would shift among industries within Contra Costa and San Joaquin Counties. Project-related job losses would occur primarily in agriculture-dependent industries, such as companies that provide farm equipment services and sales, and sales of fertilizer, seed, and other agriculture supplies and services. Job gains would occur in industries that provide levee maintenance and equipment maintenance services and in recreation-dependent businesses.

- **C17-19.** The effects of flooding the reservoir islands on roads and highways are described in Chapters 3D, "Flood Control", and 3E, "Utilities and Highways".
- C17-20. This comment does not apply to the currently proposed Delta Wetlands Project. The Delta Wetlands Project involves diverting and storing water on two islands and creating wetlands and wildlife habitat on two other islands. Refer to the Section 404(b)(1) Alternatives Analysis (Appendix 4 of the 1995 DEIR/EIS) for a discussion of the alternatives screening process. See also response to Comment E8-5.

# Section D. Special Interest Groups



PLANNING AND CONSERVATION LEAGUE

OF WALERRONI

CARSSENIO

October 4, 1995

OFFICERS GARY PATTON President

MICHAEL REMY Senior Vice-President TINA THOMAS

REGIONAL VICE PRESIDENTS KEVIN JOHNSON San Diego

DOROTHY GRÈEN Los Angeles

JANE HAGEDORN Sacramento

TOTTON P. HEFFELFINGER San Francisco

DAN FROST Superior California

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CALIFORNIANS AGAINST WASTE CENTER FOR MARINE CONSERVATION CITIZENS FOR A BETTER ENVIRONMENT FRIENDS OF THE RIVER ACTION GREENBELT ALLIANCE LAGUNA GREENBELT INC. LEAGUE TO SAVE LAKE TAHOS MARIN CONSERVATION LEAGUE MONO LAKE COMMITTEE MOUNTAINS RESTORATION TRUST SAVE SAN FRANCISCO BAY ASSOCIATION SOCIETY FOR CALIFORNIA ARCHAEOLOGY SOUTHERN CALIFORNIA AGRICULTURAL LAND FOUNDATION TRAIN RIDERS ASSOCIATION

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SAVE MOUNT DIABLO
SANCTUARY FOREST
TAMALPAIS CONSERVATION CLUB

Jim Sutton Division of Water Rights State Water Resources Control Board PO 2000 Sacramento, CA 95812-2000

Dear Mr. Sutton:

We have received and reviewed the EIR-EIS for the Delta Wetlands Project. Thank you for sending us these documents.

It is clear that without some better form of management, the western Delta islands will soon be gone. Due to continued subsidence, the levees will fail in a flood, or be demolished in an earthquake. With the failure of the levees, more unproductive Frank's Tracts will be created, damaging the Delta environment and threatening the abilities of the State Water Project and the Central Valley Project (and Contra Costa County) to divert water from the Delta.

The Delta Wetlands project is a creative attempt to continue the economic and environmental benefits of the islands. It is clear that the conversion of Bouldin Island and Holland Tract would be of great benefit to fish and wildlife. It also appears that, with proper mitigation of impacts on fisheries and water quality, that the use of Webb Tract and Bacon Island for reservoirs would be acceptable from an environmental point of view.

Overall, the Delta Wetlands proposal is creative and innovative. Now it is up to the Board and the Corps of Engineers to set conditions which mitigate any significant environmental impacts, and then permit the project to move forward. Once you have acted, Delta Wetlands will be free to negotiate the sale of stored water to a variety of buyers.

Thank you for considering these comments.

sincerely,

Gerald H. Meral Executive Director

End Willer

926 J Street, Room 612, Sacramento, CA 95814 916-444-8726 FAX 916-448-1789

3.D-1

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D1-1

## **Planning and Conservation League**

D1-1.	The lead agencies acknowledge this comment supporting the project.

#### State of California

Before the State Water Resources Control Board

DELTA WETLANDS PROJECT

DELTA WETLANDS (JOHN WINTHER ET AL.), APPLICANT

WATER RIGHT APPLICATIONS 29061, 29062, 29063, 29066 AND 30267, 30268, 30269 and 30270

PETITIONS TO CHANGE THE APPLICATIONS; AND APPLICATION TO THE U.S. ARMY CORPS OF ENGINEERS FOR A PERMIT PURSUANT TO SECTION 404 OF THE CLEAN WATER ACT AND SECTION 10 OF THE RIVERS AND HARBORS ACT IN CONTRA COSTA AND SAN JOAOUIN COUNTIES

BAY DELTA ESTUARY THENCE PACIFIC OCEAN

DRAFT ENVIRONMENTAL IMPACT REPORT AND DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR DELTA WETLANDS PROJECT

ONE DAY HEARING OF OCTOBER 11, 1995

## WRITTEN COMMENTS BY THE CALIFORNIA SPORTFISHING PROTECTION ALLIANCE

A one-day hearing will be held on October 11, 1995 by the State Water Resources Control Board (hereinafter known as "SWRCB") to receive comments on the draft EIR/EIS for the proposed Delta Wetlands Project. The SWRCB and the U.S. Army Corps of Engineers (herein after known as "USACE") will take oral and written comments regarding the draft EIR/EIS at the hearing.

The following are the comments of the California Sportfishing Protection Alliance (herein after known as "CSPA") regarding the draft EIR/EIS for the proposed Delta Wetlands Project:

- 1. The CSPA filed protests against the above mentioned water right applications.
- 2. The CSPA filed scoping comments on the draft EIR/EIS for the proposed project as the project was proposed.
- 3. The CSPA received the draft EIS/EIR in mid September. The deadline date for submitting written comments to the draft EIR/EIS is November 21, 1995 or about 40 days.

We believe this one day hearing is premature because the "box" of environmental documents contains about 2,000 pages of data and information which must be reviewed by me. Consequently, we cannot at this time provide written comments concerning the adequacy of the draft EIR/EIS.

D2-1

**D2-2** 

**D2-3** 

- However, we do have one comment to make to the SWRCB and the USACE. It is our understanding that the developer(s) of the proposed Delta Wetands Project propose to sell the project to the Department of Water Resources (herein after known as "DWR"). Consequently, it appears that the DWR will operate the project differently than what is stated in the draft EIR/EIS. If that is the case, the Draft EIR/EIS must disclose this information, including the proposed day to day operations of the Delta Wetlands Project by the DWR, and mitigate the direct, indirect, and cumulative environmental impacts to the public trust resources to less than significant. In the event the developers do not sell the project until after they obtain the water right permits from the SWRCB for the proposed project, the SWRCB and the USACE must prepare an additional subsequent EIR/EIS which discloses the proposed "new" daily operations of the project by the DWR: the direct, indirect, and cumulative impacts to the environmental (public trust resources); with mitigation measures which reduces significant direct, indirect and cumulative impacts to less than significant.
- 5. The Delta Wetlands Project should only be allowed to store water at the proposed reservoirs only when water in the Bay Delta Estuary exceeds the "new" water quality standards for the Bay Delta Estuary or any additional "new" water quality standards either ordered by the SWRCB or ordered by the courts. This should be included as an alternative in the Draft EIR/EIS.

Please give the above mentioned comments serious consideration and weight, and place them into the record for the one-day hearing.

Respectfully Submitted

Robert J. Baiocchi, Consultant

For: California Sportfishing Protection Alliance

P.O. Box 357

Quincy, CA 96971

Bus Tel: 916-283-3767 (Quincy Office) or 916-836-1115

(Graeagle Office) or 916-283-1007 (Law Office); Fax: 916-283-

4999 or 916-283-5017

Dated: October 7, 1995

#### CERTIFICATE OF SERVICE

State Water Resources Control Board
Division of Water Rights
Attn: Jim Sutton
P.O. Box 2000
Sacramento, CA 95812-2000

U.S. Army Corps of Engineers Regulatory Branch Attn: Jim Monroe 1325 J Street, Room 1444 Sacramento, CA 95814-2922

Jim Canaday, Environmental Unit Division of Water Rights P.O. Box 2000 Sacramento, CA 95812-2000

Gary Bobker
The Bay Institute of San Francisco
625 Grand Avenue, Suite 250
San Rafael, CA 94901

David Yardas Environmental Defense Fund Rockridge Market Hall 5655 College Avenue Oakland, CA 94618

Arthur Feinstein
National Audubon Society
Golden Gate Chapter
590 Texas Street
San Francisco, CA 94107

Cynthia Koehler and David Fullerton Natural Heritage Institute 114 Sansome Street, Suite 1200 San Francisco, CA 94104

Hal Candee Natural Resources Defense Council 71 Stevenson Street, Suite 1825 San Francisco, CA 94105

Nat Bingham
Pacific Coast Federation of Fishermen's Association
P.O. Box 783
Mendocino, CA 95460

Barry Nelson
Save San Francisco Bay Association
1736 Franklin Street, 3rd Floor
Oakland, CA 94612

David Nesmith
Sierra Club
5237 College Avenue
Oakland, CA 94618-1414

Steve Volker Sierra Club Legal Defense Fund 180 Montgomery Street, Suite 1400 San Francisco, CA 94104

Jim Crenshaw, President California Sportfishing Protection Alliance 1248 East Oak Avenue, Suite D Woodland, CA 95695

Bill Jennings, Chairman California Sportfishing Protection Alliance 5637 North Pershing Avenue, Suite 2-A2 Stockton, CA 95207

Lorna Carriveau, President
Northern California Council Federation of Fly Fishers
California Sportfishing Protection Alliance
Board Member
801 Brookside Drive
Woodland, CA 95695

Mike Jackson, Counsel
California Sportfishing Protection Alliance
P.O. Drawer 207
Quincy, CA 95971-0207

Interested Parties

#### **California Sportfishing Protection Alliance**

- **D2-1.** The SWRCB and USACE extended the comment period by 30 days (to December 21, 1996) in response to this and other requests.
- D2-2. Neither DWR, USBR, nor any other entity has made a proposal for purchase of the Delta Wetlands Project for which the lead agencies could reasonably assess the environmental effects. The commenter is correct in suggesting that additional environmental documentation would need to be completed if Delta Wetlands were to sell the project and a new project operator proposed project operations different from those discussed in the NEPA and CEQA documentation already completed for the project. Subsequent environmental analysis also could be required if any changes made to project operations would require further permitting or the modification of Delta Wetlands' water rights. The 1995 DEIR/EIS and the 2000 REIR/EIS both disclosed that additional environmental review of the project likely would be needed if project operations were to be integrated with SWP and CVP operations. See also Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program".
- D2-3. The Delta Wetlands Project would always operate within the applicable water quality objectives. As described in Chapter 2 of the 1995 DEIR/EIS and of FEIS Volume 1, the 1995 WQCP was considered part of the baseline for assessing Delta Wetlands Project operations. The project alternatives were simulated under the objectives stated in the 1995 WQCP. The general rule is that the Delta Wetlands Project would be required to operate under all applicable standards for protection of Delta water quality, fish and wildlife uses, and other resources. It would be precluded from interfering with the ability of those who hold prior water rights to comply with Delta standards, whatever the prevailing standards may be (see page 3A-1 in Chapter 3A of the 1995 DEIR/EIS [page 3A-3 of FEIS Volume 1]).

SHASTA LAKE BUSINESS OWNERS' ASSOCIATION COMMENTS PRESENTED AT THE PUBLIC HEARING FOR THE DELTA WETLANDS PROJECT

> SACRAMENTO, CALIFORNIA OCTOBER 11, 1995

SPEAKER: ROGER LEFEBURE FIRST VICE PRESIDENT

My name is Roger Lefebvre. I am the first vice president of the Shasta Lake Business Owners' Association.

Businesses directly located or involved on Shasta Lake employ in excess of 650 people, over 200 of which are permanent employees, throughout the year. These figures do not account for residual employment, such as gas stations, restaurants, grocery, and outside area service businesses that support the lake.

Tourism on Shasta Lake, which amounted to 6.4 million visitor days in 1994, is very closely related to the water level in Shasta Lake. When the water level is high, like this year and 1993, recreational use of Shasta Lake is also high. As the water level drops in the reservoir, the tourists lose interest and go elsewhere.

We view the Delta Wetlands Project as an opportunity to provide a new source of water to fill downstream demands without putting additional pressure on the water supply in Shasta Lake. It is very important to us that the Delta Wetlands Project is producing wildlife benefits and that there are no fisheries impacts without suitable mitigation measures.

D3-1

The Draft Environmental Impact Report for the project appears to be very thorough and comprehensive. It is our hope that the responsible permitting and regulatory agencies move this project forward as soon as possible.

Thank you for the opportunity to make these comments.

Roger Lefebvre

First Vice President

Shasta Lake Business Owners' Association.

96051 P.O. Box 709, Lakehead, Ca.

## **Shasta Lake Business Owners' Association**

D3-1.	The lead agencies acknowledge this comment supporting the project. Because this letter
	does not specifically comment on the environmental analysis in the 1995 DEIR/EIS, no
	response is required.
	· · · · · · ·

# California Striped Bass Association

P.O. Box 591 Bethel Island, CA 94511

State Board

October 15, 1995

(510)684-3199 Fax(510)684-3024

State Water Resources Control Board Division of Water Rights Attention: Jim Sutton PO Box 2000 Sacramento CA 95812-2000

Subject: Delta Wetlands Project

Gentlemen:

The California Striped Bass Association, with seven chapters from Fresno to Sacramento and representing thousands of anglers, has concerns regarding the potential damage this project could cause to the Delta.

Taking water from the Delta and storing it on lands that have been used for farming, some light industrial and cattle ranching has the potential of severely contaminating this water. Over a period of years the soils have been fertilized, various insecticides have been used and cattle ranching has left the soils contaminated; i.e. in Tomales Bay when there is an abnormally high rainfall the oyster industry has to curtail oyster farming due to the contaminated runoff from range cattle. We've all heard of DDT and a whole host of insecticides that have been banned over the years. Surely, these leave residuals in the soil. Pumping stored water from these soils back into the Delta will positively add to the extinction of more species of fish and wildlife. Also, there are millions of humans that rely on the Delta as their source of drinking and household water.

Storage of water on these islands raises a potential for levee failure from inland wave action. There are many levees in the Delta now that have failed. Why would anyone have the power to add to this danger? A levee failure would increase the salinity of the drinking water obtained from the Delta. Flooding these islands will have a tendency to put pressure on neighboring islands which could cause levee failure or increased levee maintenance at a substantial cost to landowners and California taxpayers. The small amount of water that could be generated from this flooding will not in any way help with any problems the Delta has with its fishery and wildlife. This project will only put money in the pockets of a few investors and make them a nice duck club.

D4-1

D4-2

Page Two State Water Resources Control Board October 15, 1995

California Striped Bass Association strongly opposes this as we have in the past. No matter how you fortify the levees, the potential for disaster is still there. We do not feel a permit should be allowed for this project. A reply would be appreciated.

Sincerely,

CALIFORNIA STRIPED BASS ASSOCIATION

Ralph Draudson

hell Dean

President

cc: U. S. Army Corps of Engineers Regulatory Branch

#### **California Striped Bass Association**

- **D4-1.** See response to Comment C9-41.
- **D4-2.** The commenter is referring to information or analysis in the 1995 DEIR/EIS that was replaced or augmented by information or analysis in the 2000 REIR/EIS. Appendix H, "Levee Stability and Seepage Technical Report", of the 2000 REIR/EIS presents an evaluation of levee stability for the Delta Wetlands reservoir levees and of worst-case levee failure. See also response to Comment C10-1.



## CENTRAL VALLEY HABITAT JOINT VENTURE

North American Waterfowl Management Plan

October 30, 1995

California Waterfowl Association

**Ducks Unlimited** 

National Audubon

The Nature Conservancy

Mr. Jim Monroe U.S. Army Corps of Engineers Regulatory Branch 1325 J Street, 14th Floor Sacramento, CA 95814

Dear Mr. Monroe:

It is the policy of the Central Valley Habitat Joint Venture Management Board (Board) to refrain from commenting on development projects of any kind. However, in consideration of the exceptionally large acreage of land in the Delta which will be affected by the Delta Wetlands Project, and the impact of the completed project on the attainment of the Joint Venture's Delta restoration and protection goals, the Board has chosen to make an exception in this case.

The Draft Environmental Impact Statement/Report for the project indicates that the mitigation for the periodic inundation of Webb Tract and Bacon Island, which will occur on Bouldin and Holland Farms, will include 2,073 acres of seasonal wetlands, 1,530 acres of agricultural/wetlands, and 2,589 acres of commercially produced corn and wheat of which 30 percent of the corn will be left standing and 50 percent of the wheat. There are also several other forms of mitigation such as post-harvest flooding, the construction of brood ponds, the establishment of tall riparian habitat at a 3:1 ratio, and sequential flooding and draining of agricultural fields to optimize shorebird and goose feeding opportunities. Given that only approximately 10 acres of seasonal wetlands and 100-150 acres of riparian habitat will be lost as a result of project implementation, and that the loss of waste grain will be more than compensated for on the mitigation islands, the Board has concluded that the proposed mitigation measures will result in significant net wetland benefits to Delta waterfowl resources. The Board, of course, would be opposed to the transfer of any "excess" mitigation habitat as credit to compensate for any other past, current, or future project.

In addition, the Board is pleased to note that the acreage of restored wetlands in excess of that needed to compensate the loss of existing wetlands, on a 1:1 basis, may be credited toward meeting the Joint Venture's objective of

**D5-1** 

protecting 3,000 acres of wetlands, and the restoration of an additional 20,000 acres of habitat within the legal boundaries of the Delta.

D5-1 cont'd

Although the Board strongly supports the project sponsors' wetland restoration proposals and applauds their innovative approach to enhancing the wildlife values derived from modified agricultural practices, we wish to make it clear that our support of these factors does not constitute an endorsement of the entire Delta Wetlands Project. Many complex issues regarding fish protection and passage, water quality, and water transport through and south of the Delta have yet to be resolved. The purpose of this letter is limited to notifying the lead agencies that in our considered opinion the completed wetland mitigation features would result in a significant and much needed net benefit to wetland dependent species in the Delta.

Should you have any questions regarding this letter, please telephone me at (916) 648-1406.

Sincerely

Bill Gaines, Chairman

Central Valley Habitat Joint Venture

cc: CVHJV Management Board

David Behar

Greg Thomas

Rich Golb

Dan Nelson

Roger Patterson

Wayne White

Tim Ouinn

C. F. Raysbrook

David Kennedy

**Bob Potter** 

## **Central Valley Habitat Joint Venture**

D5-1.	The lead agencies acknowledge this comment that recognizes the benefits to	) wetlands	and
	waterfowl of implementing the HMP for the Delta Wetlands Project.	Chapters	3G,
	"Vegetation and Wetlands", and 3H, "Wildlife", describe these benefits in	detail.	



#### CALIFORNIA URBAN WATER AGENCIES

November 1, 1995

Mr. Jim Sutton California State Water Resources Control Board Division of Water Rights P.O. Box 2000 Sacramento, CA 95818-2000

Mr. Jim Monroe U.S.Army Corps of Engineers Regulatory Branch 1325 J Street, 14th Floor Sacramento, CA 95814

RE: Request For Comment Deadline Extension on Delta Wetlands EIR

Dear Sirs:

Members of the California Urban Water Agencies are attempting to coordinate their reviews and comments on the Draft DEIR/EIS for the Delta Wetlands Project. To enable us to provide constructive and coordinated comments on the DEIR/EIS, CUWA requests that the State Board and Army Corps of Engineers extend the comment period for comment on the Project until January 10, 1996. This important project has many implications regarding water quality, water supply, environmental and other Project impacts which must be carefully examined and cooperatively resolved. In that spirit, the CUWA member agencies have determined they need additional time to perform analyses to support constructive commentary which can otherwise help resolve areas of conflict.

Please contact me if you have any questions or concerns. I would appreciate any advance notification you can give regarding the ability to extend the deadline for comments.

Sincerely,

Byron M. Buck
Executive Director

## California Urban Water Agencies

D6-1.	The SWRCB and USACE extended the comment period by 30 days (to December 21, 1996) in response to this and other requests.



## CALIFORNIA WATERFOWL ASSOCIATION

4630 NORTHGATE BOULEVARD • SUITE 150 • SACRAMENTO, CA 95834 (916) 648-1406 • (916) 648-1665 FAX

"Preserving California's waterfowl, wetlands, and outdoor heritage...since 1945."

November 20, 1995

Mr. Jim Sutton State Water Resources Control Board Division of Water Rights P.O. Box 2000 Sacramento, CA 95812-2000

Dear Mr. Sutton:

The California Waterfowl Association (CWA) is pleased to submit brief comments on the Draft Environmental Impact Report for the Delta Wetlands Project. It is important to recognize that our comments are limited to those aspects of the project pertaining waterfowl and their habitats.

CWA, organized in 1945, is an 11,000 member statwide conservation organization dedicated to the preservation, enhancement and restoration of California's waterfowl and wetlands. We have active programs in the areas of education, outreach, research and government affairs.

Our specific comments are as follows:

- 1. The Habitat Management Plan (HMP) is an aggressive approach to the management of nearly 9,000 acres for the benefit of waterfowl and other wetland-dependent species. It is important to note that 24 species of special concern can benefit from this newly created habitat. We recognize that the final plan will include some fine-tuning, which should stress the importance of ground-nesting birds, including waterfowl. This should involve the construction of additional nesting islands as well as spring/summer flooded wetlands that provide cover and food for ducklings and young of other wetland-dependent species.
- 2. CWA also believes that the elimination of "spud" ditches will improve survival of ducklings that might otherwise be trapped in these ditches. We recognize

D7-1

D7-2

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- this may reduce agricultural productivity, but we feel that there is more than enough food produced on the islands to accommodate this minor tradeoff.
- D7-2 cont'd
- 3. CWA's greatest concern relates to the high probability of significant botulism and/or avian cholera outbreaks in the closed-to-hunting zones. The best management plan would be to allow light hunting in those areas in order to encourage a more even distribution of wildlife use on the two habitat islands. The closed zones may also reduce hunting quality on neighboring islands.

D7-3

Thank you for the opportunity to submit these comments.

Sincerely,

Walter R. Sikes Executive Director

WRS/cs

#### **California Waterfowl Association**

- **D7-1.** Development of waterfowl breeding habitat is described on pages 5–6 and in Table 2 of the HMP (Appendix G3). The plan includes development of brood ponds and nesting cover. Delta Wetlands, however, is not required to mitigate the loss of nesting waterfowl habitat because the project would affect only limited and poor-quality nesting habitat.
- D7-2. As described in Table 2 of the HMP (Appendix G3), Delta Wetlands is committed to modifying spud ditches to reduce the likelihood of duckling mortality caused by entrapment in ditches. The HMP requires cultivation of wheat, and the elimination of spud ditches may not be compatible with that goal (see Table 2 in the HMP). However, management of the habitat islands to meet HMP objectives could include the elimination of spud ditches if it is feasible to continue cultivating wheat. Also, as noted in response to Comment A5-8, the HMP can be amended to change habitat types and management practices in future years if monitoring data indicate that such changes would continue to meet the goals of the HMP.
- D7-3. The commenter is concerned about the possibility of botulism and avian cholera outbreaks in areas closed to hunting and the effects of such areas on hunting quality on neighboring islands. The Delta Wetlands Project islands would be monitored for outbreaks of botulism or other waterfowl diseases, as described on page 3H-26 of the 1995 EIR/EIS (page 3H-28 of Chapter 3H of FEIS Volume 1) under "Mitigation Measure H-3: Monitor Waterfowl Populations for Incidence of Disease and Implement Actions to Reduce Waterfowl Mortality". If a disease outbreak is detected before, during, or after waterfowl season in zones closed to hunting, Delta Wetlands would consult with DFG and USFWS to develop strategies to reduce mortality. Hunting or hazing in zones closed to hunting is not precluded as a potential management action, but such a change in habitat island management would have to be justified as described under "Management Monitoring Programs and Performance Standards" on pages 21–22 of the HMP (Appendix G3). The potential change in waterfowl use patterns is described as a less-than-significant impact; see Impact H-21 on page 3H-27 of the 1995 DEIR/EIS (page 3H-30 of FEIS Volume 1).



November 27, 1995

U.S. Army Corps of Engineers Regulatory Branch Attention: Jim Monroe 1325 J Street, Room 1444 Sacramento, Ca. 95814-2922

Re: Delta Wetlands Project

Dear Mr. Monroe

Friends Of The River recognizes the benefits that could occur from the development of the DW project.

The Delta islands have subsided substantially since the mid 19th century due to the continuous erosion of topsoil and the oxidization of organic soil resulting from intensive agricultural practices. The DW project would significantly slow the subsidence process by reducing agricultural use through water storage and habitat management. This would also reduce the cost of levee maintenance as the levees would no longer need to be built to greater heights to compensate for subsidence.

The creation of water storage on Delta islands by the DW project could offset the need to dam free flowing rivers. This alternative of storing water in an area previously degraded by agriculture would be much less detrimental to the environment than the damming of a river rich in biological diversity.

However, Friends Of The River cannot support the DW project unless specific conditions are met in order to meet the needs of the natural environment of the Delta. These conditions involve.

- \* The export of water into the DW project must not exceed a level which would become harmful to the Delta's native and migratory fish species and other aquatic species.
- \* The DW project must allow for pulse flows so that appropriate quantities of fresh water can be passed through the Delta to lessen salinity and improve anadromus fish passage.
- \* While in operation, the DW project must yield sufficient water to the environment to compensate for periods of island filling and when water is diverted for export.

**D8-1** 

**D8-2** 

**D8-3** 

We hope that you recognize the crucial need for these conditions. The Delta Wetlands project could be positive, however steps must be taken to ensure that it does not worsen the problems that this region has been historically subject to. The Delta is a unique ecosystem which has been under man made stress for over a century. Due to the Delta's ecological importance the utmost consideration must be taken before a project such as this can be implemented.

Sincerely

Roy Swanson

Conservation Assistant

#### Friends of the River

- D8-1. Since this comment letter was submitted, the lead agencies have concluded formal consultation with DFG, NMFS, and USFWS on the effects of the Delta Wetlands Project on listed fish species. As part of the consultation process for compliance with the federal and California ESAs, USACE, the SWRCB, NMFS, USFWS, DFG, and Delta Wetlands agreed on the project operating parameters referred to as the FOC, which have been incorporated into the proposed project. DFG subsequently issued a no-jeopardy biological opinion regarding project effects on delta smelt and winter-run chinook salmon; NMFS issued no-jeopardy biological opinions regarding project effects on winter-run chinook salmon, Central Valley steelhead ESU, and Central Valley spring-run chinook salmon ESU and their habitats; and USFWS issued no-jeopardy biological opinions regarding project effects on delta smelt and splittail and their habitats. The biological opinions include RPMs to reduce or compensate for the incidental take of listed species. The FOC and RPMs reduce all potential project impacts on these species to a less-than-significant level and provide protections for nonlisted species. If the lead agencies approve Delta Wetlands' permit applications, Delta Wetlands will be required to implement the terms of the biological opinions as part of its operating conditions. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for details about the formal consultation and discussion of the terms of the biological opinions.
- **D8-2.** Delta Wetlands Project operations would not adversely affect flows identified for Delta fishery or other public trust benefits. See response to Comment B6-26.

Since this comment letter was submitted, the lead agencies have concluded formal ESA consultation with DFG, NMFS, and USFWS for project effects on listed fish species and their habitats. Biological resources that could be affected by Delta Wetlands Project operations will be protected by the mitigation measures described in the 1995 DEIR/EIS; they will also be protected by the FOC and RPMs that were developed through the consultation process and described in the no-jeopardy biological opinions issued by DFG, NMFS, and USFWS. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

D8-3. Operation of the Delta Wetlands Project would be consistent with the objectives of the 1995 WQCP. Additionally, the ESA consultation for the project addressed specific measures to ensure the provision of sufficient flows for environmental purposes. As part of the formal consultation process on the Delta Wetlands Project's effects on protected fish species, Delta Wetlands, the SWRCB, USACE, DFG, NMFS, and USFWS cooperatively developed operating parameters (referred to as the FOC) for the project to ensure the protection of aquatic species. The FOC include many specific measures that define the flow and water quality conditions under which project diversions and discharges would be allowed; they also describe mitigation that Delta Wetlands has agreed to incorporate into the proposed project.

### CALIFORNIA SPORTFISHING PROTECTION ALLIANCE P.O. BOX 357 QUINCY, CALIFORNIA 95971

State Water Resources Control Board Division of Water Rights P.O. Box 2000 Sacramento, CA 95812-2000

December 13, 1995

U.S. Army Corps of Enginners Regulatory Branch 1325 J Street, 14th Floor Sacramento, CA 95814

Attn: Jim Sutton, Environmental Unit, Division of Water Rights, SWRCB; and Jim Monroe, Regulatory Branch, U.S. Army Corps of Engineers

Re: Delta Wetlands Project, Draft Environmental Impact Report and Environmental Impact Statement; Comments by the California Sportfishing Protection Alliance, Protestant.

#### The Project

Delta Wetlands Properties (DW) proposes a water storage project on four (4) islands on the Sacramento-San Joaquin Delta. The project would involve diverting and storing water on two of the islands (Bacon Island and Webb Tract -"reservoir islands") and seasonally diverting water to create and enhance wetlands and to manage wildlife habitat on the other two islands (Bouldin Island and Holland Tract -"habitat islands"). DW proposes constructing recreation facilities along the perimeter on all four DW project islands; operating a private airstrip on Bouldin Island; and, during periods of nonstorage, managing shallow water, which may provide wetlands habitat values on the reservoir islands. The DW project islands are owned either wholly or partially by DW. To operate its project, DW would improve and strengthen leeves on all four islands and install additional siphons and water pumps on the perimeters of the reservoir islands. DW would operate the habitat islands primarily to support wetlands and wildlife habitat.

The purpose of the DW project is to divert surplus Delta inflows, transferred water, or banked water for later release for Delta export or to meet water quality or flow requirements for the San Francisco Bay/Sacramento-San Joaquin Delta (Bay Delta) estuary.

#### Water Rights Issues

1. The SWRCB is holding workshops to discuss water rights and what entities will be responsible for meeting the new water quality standards for the Bay Delta. A water rights hearing will follow the workshops in determining the water users that will be required to the meet the new water quality standards for the Bay Delta.

In order to determine the direct, indirect, and cumulative impacts to the public trust resources of the Bay Delta Estuary resulting from the proposed DW project, and other projects who may be responsible for meeting the water quality standards for the Bay Delta, the new information (SWRCB Board Decision - Hearing Record) as a result of the proposed Bay Delta Water Rights Hearing should be evaluated in a subsequent EIR/EIS for the DW Project. The Draft EIR/EIS is deficient without this new information.

- 2. One of the purposes of the DW Project is to store surplus water. The determination of whether there is surplus water available in the Bay Delta for the DW Project cannot be determined until the SWRCB makes a decision at the proposed Bay Delta Water Rights Hearing. The Draft EIR/EIS is deficient without this new information.
- 3. Another purpose of the DW Project is to store transferred water or banked water for later sale and/or release for Delta export or to meet water quality or flow requirements for the Bay Delta Estuary.

The Draft EIR/EIS did not evaluate the cumulative impacts to the public trust resources in the Sacramento River watershed and the San Joaquin River watershed from water transfers and/or banking water to the reservoir islands (points of storage and diversion to the point of storage at the DW reservoir islands). The Draft EIR/EIS should disclose the specific reservoirs where the transferred and/or banked water is stored, and the Draft EIR/EIS should evaluate the resulting cumulative impacts to the public trust resources in the watershed where the reservoirs are located. The Draft EIR/EIS is deficient without this disclosure, and is also deficient because the document failed to evaluate the cumulative impacts to public trust resources resulting from water transfers and/or water banking in specific watersheds where the reservoirs are located.

Transferring water under the California Water Code is exempt from the requirements of the California Environmental Quality Act and its Guidelines. Consequently, the cumulative impacts to the public trust resources associated with using the DW storage reservoirs for transferred and/or banked water from sources in the Sacramento River and San Joaquin River watersheds should be evaluated in the Draft EIR/EIS.

D9-1

D9-2

For the purposes of the CSPA comments, public trust resources means: chinook salmon (all species and life stages); steelhead (all life stages); Delta smelt (all life stages); longfin smelt (al life stages); Sacramento Splittail (all life stages); American shad (all life stages); striped bass (all life stages); resident trout (all life stages) (located in reservoirs or in upstream areas above the lowest dams in the Sacramento and San Joaquin rivers watershed); other fish species (all life stages); recreation (reservoirs and watersheds; all types of recreation such as fishing, boating rafting, etc.), riparian habitat (all plant species); rare, threatened and endangered species (all life stages and their habtat); water quality (for public water supplies, fishery and aquatic resources); and other public trust resources not mentioned.

D9-3 cont'd

4. A number of counties hold entitlements to store, divert, and use water in the Sacramento River and San Joaquin River systems. Many of the county entitlements are for domestic, irrigation, industrial, stockwatering, fish culture, fish and wildlife, and other beneficial uses. The proposed DW Project may interfere substantially with the water right entitlements those counties hold. This water right issue was not disclosed and evaluated in the Draft EIR/EIS. The Final EIR/EIS should evaluate those entitlements and the associated impacts to the areas of origin water right entitlements for all project alternatives including the no project alternative.

D9-4

We reference Section 1215 et seq. of the California Water Code under Article 1.7. Areas of Origin.

D9-5

5. The Draft ETR/EIR did not disclose the places of use where DW Project water will be put to beneficial use. We believe the Final EIR/EIS must disclose the specific places of use where DW water will be used. We believe the SWRCB cannot issue a water right permit without site specific knowledge and detailed information as to the specific places of use where DW water will be put to beneficial use.

The Draft EIR/EIS also did not disclose, evaluate, and mitigation cumulative impacts to the environment at the specific places of use. The Draft EIR/EIS is deficient without this disclosure and evaluation.

#### Water Transfers and Water Banking

6. Water transfers and water banking have occurred and will continue to occur without the need for the DW Project. The Final ETR/ETS should disclose this information.

Potential Sale of DW Project to the Department of Water Resources (State Water Project) and/or U.S. Bureau of Reclamation (Central Valley Project)

7. The DW Project may be sold to the Department of Water Resources and/or U.S. Bureau of Reclamation. The DW Project may be managed differently by the Department of Water Resources and/or U.S. Bureau of Reclamation for SWP and CVP purposes. The Final EIR/EIS should disclose that a subsequent EIR/EIS will be prepared for the DW Project upon its sale to the Department of Water Resources and/or U.S. Bureau of Reclamation for the purposes of either the SWP or the CVP.

## Potential DW Operation Changes - Department of Water Resources and U.S. Bureau of Reclamation

8. The Draft EIR/EIS briefly discusses the potential for the Department of Water Resources and the U.S. Bureau of Reclamation to modify their operations in conjunction with the operations of the DW Project. The Draft EIR/EIS states that the releases from Shasta and Oroville reservoirs could be decreased during the period when project islands are discharging. Reductions in releases below Keswick and the accompanying higher water temperature immediately downstream in the Sacramento River has the potential to cumulatively and adversely impact winter-run chinook salmon as well as spring-run chinook salmon. Such cumulative impacts should be disclosed andevaluated in the Final EIR/EIS, and should also be mitigated to less than significant.

We believe that any changes in DW project operations beyond the scope of the proposed DW Project should require an additional CEQA document such as a subsequent EIR/EIS.

# Sacramento River and Feather River - Changes in Upstream Storage and Flow Releases

Export pumping of DW water supplies by the SWP and CVP could allow greater reservoir carryover storage. Increased carryover storage could allow greater control of flow and water temperature below Keswick and could potentially improve fishery resources in SWP or CVP reservoirs. However, a reduction in downstream river flows resulting from DW - SWP -CVP operation changes has the potential to have adverse cumulative impacts on all life stages of salmonids. The Draft EIR/EIR did not evaluate the potential cumulative impacts to all life stages of salmonids in the Sacramento River and the Feather River from DW - SWP - CVP operational changes. A hydrology model should be prepared and included in the Final EIR/EIS which shows changes in flows in the Sacramento River and the Feather River as a result of DW, DWR, and USBR operational changes in conjunction with biological evaluations which shows the resulting cumulative impacts to salmonids with mitigation measures.

D9-7

D9-8

Reduced flows from DW - SWP - CVP operation changes has the potential to have cumulative impacts such as: strand juvenile fish, increase river temperatures, and reduce transport flows for fish spawning above Sacramento such as striped bass. The Draft EIR/EIS did not evaluate the cumulative impacts to striped bass (all life stages) resulting from DW - SWP - CVP operational changes. A hydrology model should be prepared and included in the Final EIR/EIS which shows changes in flows in the Sacramento River and the Feather River as a result of operational changes in conjunction with biological evaluations which shows the resulting cumulative impacts to salmonids with mitigation measures.

Reduced flows in the Sacramento River and the Feather River from DW - SWP - CVP operational changes also has the potential to cause cumulative impacts to American shad populations and habitat (all life stages), with a resulting cumulative impact to sportfishing. The Draft EIR/EIS did not evaluate the potential cumulative impacts to American shad populations and habitat (all life stages), and sportfishing. The Draft EIR/EIR should be amended to include the cumulative impacts to American shad and sportfishing resulting from DW - SWP - operational changes.

### Fish and Wildlife Species and Their Habitat

10. The proposed DW Project, as presently described, does not appear to jeopardize the continued existence of the greater sandhill crane and Swainson's hawk. However, winterrun chinook salmon and Delta smelt may be jeopardized due to the direct impacts of project operations and indirect impacts of operational changes in the Bay Delta.

Additional information should be included in the Final EIR/EIS on project alternatives and conservation measures which must eliminate or significantly reduce incidential take and offset unavoidable impacts in order to avoid a jeopardy finding. Public Trust resources protection measures should be included in the Final EIR/EIS such as modifying the DW Project operations during periods when winter-run chinook salmon, Delta smelt, or Sacramento splittail may be impacted; restrictions on other operational changes that could be adverse to these species; and acquisition and development of suitable shaded riverine aquatic and shallow shoal habitat to replace that lost due to the proposedn DW Project.

The CSPA believes that the Draft EIR/EIS does not provide the DFG, USFWS, and USNMFS with the necessary information to issue written findings for the State and Federally listed winter-run chinook salmon, Delta smelt, and the federal candidate Sacramento splittail. We strongly recommend that the Biological Opinion in the Draft EIR/EIS is amended to include appropriate compensation measures

D9-9 cont'd

D9-10 cont'd

acceptable to the state and federal fish and wildlife agencies that in fact protect these species and their habitat.

#### Salinity Habitat

11. The discussion in the Draft EIR/EIS for Fishery Resources (Chapter 3F) and the Biological Assessment for impacts to fish species (Appendix F-2) contains an analysis of fishery impacts. We have concerns about three areas of the analysis. Those being: changes in the area of optimal salinity habitat, the entrainment risk for winter-run chinook salmon and other Sacramento River races of salmon, and the determination of impact significance.

One factor of optimal salinity habitat is not disclosed and evaluated in the Draft EIR/EIS is habitat quality. Factors such as the percentage of the area that is shallow shoal habitat, adjacent SRA habitat and tidal wetlands, and the percentage of the areas within the influence of the State Water Project and the Central Valley Project export facilities are not adequately assessed. All of these factors contribute to the quality of optimal salinity habitat. Without consideration of these factors, conclusions reached about net changes in this habitat can be misleading.

The DW Project as described in the Draft EIR/EIS will result in a significant reduction in the quality and volume of optimal salinity habitat for Sacramento splittail, long-fin smelt, and Delta Smelt. Measures to eliminate these impacts should be included in the Final EIR/EIS.

## Predation and Entrainment - Fishery and Aquatic Resources

12. The Draft EIR/EIS discloses avoidance measures and fish screens to be implemented by DW. However, chinook salmon, Delta smelt, long-fin smelt, Sacramento splittail, and other fish species have the potential to be lost during DW project filling and subsequent releases for export and other project purposes. Increased predation is likely to occur at intake and drain stations and recreational boat dock structures.

Significantly more details need to be developed and included in the Final EIR/EIS before the adequacy of the fish screens can be determined for the DW Project. DW should work with the DFG, USFWS, and USNMFS to ensure that the fish screens installed meet applicable screening criteria and be fully protective of fishery resources. The fish screens need to be designed to address and meet the 0.2 feet per second criteria currently being used by the USFWS. The Final EIR/EIS should include a fish screen maintenance plan.

D9-11

The CSPA believes that all DW Project siphons and pumps should be screened with state of the arts fish screens to prevent entrainment to fish species (all life stages). The Final EIR/EIS should disclose the number of DW siphons and pumps, and the number that will be screened with state of the arts fish screens. For those siphons and pumps which will not be screened, the Final EIR/EIS should include an estimate of losses of fish species, and the reasons why those siphons and pumps will not be screened.

D9-12 cont'd

Fish screens are not 100% effective in preventing entrainment. The Final ETR/ETS should disclose the number of specific fish species (all life stages) that will be entrained with the proposed fish screens. And how those fish losses will be mitigated to less than significant. Considering the status of the public trust fisheries of the Bay Delta, the loss of one fish is significant to the public.

## Aquatic Habitat - Franks Tract, Santa Fe Cut, and the Delta

13. The Draft EIR/EIS states that a 5% increase in annual boater use-days is expected at project build-out (page 31-14). The increased erosion due to the higher number of boats in the Delta has the potential to adversely impact SRA habitat throughout the Delta. Reservoir island discharges may increase channel velocities and erode channel islands on the northeast side of Franks Tract and in Santa Fe Cut.

D9-13

The Final EIR/EIS should disclose, evaluate, and mitigate impacts to aquatic habitat as noted above from increase erosion resulting from the DW Project, including the potential impacts to channel islands on the northeast side of Franks Tract and in Santa Fe Cut.

#### Dissolved Oxygen Levels - DW Project Operations

14. DO levels below 6.0 mg/l can interfere with the movement of fish such as adult chinook salmon. When DO is less than 7 mg/l in channels adjacent to reservoir islands releases from storage should be monitored during DW project releases to ensure that adjacent channel DO does not decrease to DO levels below 6.0 mg/l. If levels drop below 6.0 mg/l project releases should cease until channel DO lever are greater than 6.0 mg/l.

D9-14

The Final EIR/EIS should disclose, evaluate, and mitigate the DO issue as noted above.

#### SRA Habitat - External Levees

15. The Draft EIS/EIR did not adequately disclose potential adverse impacts to fish, wildlife, and riparian habitat due to reconstruction or maintenance of the island levees.

The Final EIR/EIR should disclose that riparian, fisheries, and wildlife habitats were adversely impacted on DW Project islands under the SB 34 program during the period 1987-1991, but that all shrub-scrub, freshwater marsh, and riparian forest impacts including anticipated future impacts were mitigated off-site at Medford Island. However, mitigation for the loss of approximately 9,000 feet of SRA habitat should be part of the proposed DW Project. The Final EIR/EIS should disclose, evaluate, and mitigate the loss of approximately 9,000 feet of SRA habitat.

Delta Berm Islands

16. The Draft EIR/EIS discusses the DW Project effects on hydrology, vegetation, and wildlife on the interior and along the water-side of the levees of the four project islands. However, the Draft EIR/EIS did not adequately disclose, evaluate, and mitigate the effects on instream channel islands or berms that surround the project islands.

Channel islands and berms provide habitat for a high diversity of endemic plants and animals and are remnants of what was once a dominant habitat in the Delta. Berm islands are subjected to numerous forces that are impacting their habitat quality and quantity. Peat mining, wave wash from passing boats, and scour from increased water velocities cumulatively contribute to the erosion and habitat degradation of those islands.

The Draft EIR/EIS (page 3B-5) states that "Diversion and export pumping can also increase channel velocities". The proposed DW recreational facilities have the potential to significantly increase the number of boaters and wave wash affecting the surrounding channels. Increases in-channel water velocities and recreational boaters could cause significant impacts to berm islands and significantly decrease habitat for sensitive species. The potential for these significant impacts were not adequately disclosed, evaluated, and mitigated in the Draft EIR/EIS. The Final EIR/EIS should disclose, evaluate, and mitigate these impacts with adequate mitigation measures. This should include the berm islands located in other Delta channels that have the potential to be adversely impacted by the proposed DW Project.

#### Cumulative Growth Inducing Impacts of the DW Project

17. The Draft EIR/EIS did not disclose and evaluate potential adverse cumulative service area impacts and cumulative growth inducing impacts of the DW Project. The growth inducement can result from either the increased exports facilitated by the DW Project or the improved reliability that may be provided by the DW Project. Increased reliability is also a key to decisions related to urban and

D9-15 cont'd

D9-16

industrial growth or agricultural growth. The Final EIR/EIS should disclose, evaluate, and mitigate the cumulative growth inducing impacts resulting from the DW Project in site specific areas where the water will be put to beneficial use.

The Final EIR/EIS should disclose a process for preparation of mitigation plans or regional multi-species plans and implementation of recommended mitigation measures to offset cumulative growth inducing impacts. These plans should disclose means to acquire sensitive habitats and key movement corridors throughout the DW Project service areas for listed and candidate species (CESA - FESA), and other public trust resources. An upper watershed restoration plan in areas above the dams in the Sacramento River watershed should also be included so that public water supplies for the SWP remain reliable and are not impacted by upper watershed erosion problems. i.e. Upper Feather River watershed; Plumas County.

The DW Project sponsors should initiate, help fund, and participate in interagency planning efforts with local, state, and federal agencies and the public, such as Calfed and the Southern California Association of Governments in funding and implementing the above mentioned mitigation plans. This coordinated planning group could implement a comprehensive mitigation plan for affected areas using funds provided by DW project beneficiaries, such as a surcharge on delivered water and subdivision development fees.

#### No Project Alternative

17. The Draft EIR/EIS describes that the intensive agricultural alternative (no-project alternative) was used as the base for comparing DW Project alternatives. It is claimed that intensive agriculture is the alternative that will be implemented in the absence of DW Project approval rather than the existing condition. (See See Page 3F-10 - Last Paragraph)

The "No Project Alternative" in the Draft EIR/EIS is grossly deficient for the following reasons:

More water should be flowing into the Bay Delta as a result of a forth coming decision by the Board regarding the lower Yuba River. We reference CSPA Complaint against Yuba County Water Agency, et al. and 17 days of hearing before the SWRCB in 1992. That water could replace water transfers and water banking, and provide water for SWP and CVP purposes including water for water quality purposes for the Bay Delta without approving the DW Project.

More water should be flowing into the Bay Delta as a result of forth coming decision by the Board and the Federal Energy Regulatory Commission (FERC) regarding the lower Mokelumne River. We reference CSPA Complaint against East Bay

D9-17 cont'd

MUD and about 15 days of hearing before the SWRCB in 1992, including FERC modifications to Pardee and Camanche dams. The CSPA was an FERC intervenor in that process. That water and the above mentioned source of water could replace water transfers and water banking, and provide water for SWP and CVP purposes including water for water quality purposes for the Bay Delta without approving the DW Project.

More water will be flowing into the Bay Delta as a result of the recent FERC mediation agreement concerning the operations of the New Don Pedro Project on the lower Tuolumne River. The CSPA was an intervenor and a party to that agreement. That water and the above mentioned sources of water could replace water transfers and water banking, and provide water for SWP and CVP purposes including water for water quality purposes for the Bay Delta without approving the DW Project.

The CVPIA provides for more water flowing into the Bay Delta from CVP reservoirs. That water and the above mentioned sources of water could replace water transfers and water banking, and provide water for SWP and CVP purposes including water for water quality purposes for the Bay Delta without approving the DW Project.

The SWRCB's water rights hearing regarding inflow into the Bay Delta should provide the water to meet the new water quality standards for the Bay Delta without approving the DW Project.

The "No Project Alternative" in the Draft EIR/EIS should be reevaluated to disclose, evaluate, and include the above mentioned sources of water that could replace water transfers, water banking, and additional DW storage without approving the DW Project.

# Public Recreation Access - Bouldin Island and Holland Tract

19. The Draft EIR/EIR descibes the fact that there is a significant shortage of public recreational opportunities in the Delta, particularly for activities such as nature study, photography, wildlife viewing, and hunting. Also, because of the status of striped bass population in the Bay Delta, sportfishing for this species has been adversely impacted by the operations of the SWP and CVP. Consequently, striped bass population and sportfishing for striped bass could be cumulatively impacted by the operations of the DW Project.

There is a potential for including major public recreational benefits as a result of the proposed DW Project.

D9-18 cont'd

It is our understanding that the Department of Fish and Game may be proposing that a 700 acre public access area be designated on Bouldin Island and a 500 acre public access area be designated on Holland Tract which would be operated by the Department. The acreage proposed for public access areas on Bouldin Island and Holland Tract comprises only a small portion of each island; 12% of Bouldin Island and 17% of Holland Tract.

Activities such as hiking, nature study, photography, wildlife observation, and hunting could be provided in the above mentioned public access areas that would not interfere with the management of the islands by DW. Public hunting could be conducted under the limitations described in the HMP and would be compatible with activities in the private recreation areas. Also, improving conditions for striped bass through DW - SWP - CVP operation could improve striped bass, populations for sportfishing purposes in the Delta.

The Final EIR/EIS should disclose and evaluate the above mentioned public recreation access areas in Bouldin Island and Holland Tract.

### Draft EIR/EIS - Impact Signifiance - CEQA and NEPA

20. The definition of signifiance will vary based on who is writing the CEQA/NEPA document, and also the setting of the project.

In the case of the DW Project, the setting is the San Francisco Bay/Sacramento-San Joaquin Delta as defined in Section 12220 of the California Water Code. CEQA Guidelines Section 15206 subd. (4) (E) states that the Delta is an area of critical environmental sensitivity which is of statewide, regional, and area wide signifiance. The importance to fish and wildlife resources in the Delta is also recognized nationally and internationally. Delta fish have been and are being significantly impacted by the operation of the SWP and CVP water projects. Consequently, the incremental impacts resulting from the DW Project must be considered as significant pursuant to the CEQA Guidelines.

Many of the conclusion reached in the Draft EIR/EIS which state that certain fishery impacts are less than significant are deficient. This is true for impacts to fishery resources of the Sacramento River system such as various races of chinook salmon, striped bass, and American shad. Impacts needs to be reevaluated and adequate measures should be developed and included in the Final EIR/EIS. The preparer of the EIR/EIS (Jones and Stokes) needs to take into serious consideration that the SWRCB has a trustee and legal duty to protect the public trust resources of the Bay Delta Estuary when the Board considers approving or not approving the proposed DW Project.

D9-19 cont'd

#### DW Project Alternatives

21. Shallow water management of the reservoir islands during non-storage should not be optional as described in this section. It must be mandatory. While DW is not held to any specific acreage or frequency for wetland habitat on the reservoir islands, which they should, the development of the inner levee infrastructure and management of shallow water wetland during periods when the reservoirs are not flooded under partial or full storage operation are part of the proposed DW Project, and should be required by the SWRCB, DFG, USFWS, and USNMFS. (See Chapter 2)

D9-21

### Water Supply and Water Project Operations

22. This section implies that the DW Project operation will likely influence upstream storage if either the SWP or the CVP buy DW water and export it rather than make reservoir releases. This section implies a close coordination with the state and federal projects and would result in consultation with the USFWS and USNMFS (FESA).

Issues in the Final EIR/EIS that should be disclosed in more detail include how rediversion by the propsed DW Project will affect the water right permits for the SWP and CVP, and compliance with 1995 WQCP. (See Chapter 3A)

**D9-22** 

The question concerning who has water rights to suplus water in the Bay Delta to meet new water quality standards and for the purposes of expoerting water should be disclosed in the Final EIR/EIS. It should be noted that DW is simply a junior water rights applicant for surplus water while the DWR and the USBR hold senior rights over the junior DW water right application. This issue should be discussed and included in the Final EIR/EIS.

Hydrodynamics

23. An analysis was not included in the Draft EIR/EIS with the three (3) agricultural barriers in place to interpret the hydrodynamic simulations with the DW Project. The Final EIR/EIS should include a model simulation with the three (3) agricultural barriers in place. (See Page 3B-8)

D9-23

24. How can water banking or water transfers be carried out without close coordination with the SWP and CVP export facilities, and without the approval of the DWR and the USBR? (See Page 3B-1)

D9-24

This issue should be disclosed and included in the Final EIR/EIS.

25. Local hydrodynamic effects has the potential to have significant impacts to important shallow shoal and SRA habitat. The Final EIR/EIS should include compensation areas to offset those losses. (See Pages 3B-17 and 18; Impacts B-1 and 2)

D9-25

D9-26

# Fishery Resources - Factors Affecting Abundance

26. Very little evidence is provided in the Draft EIR/EIS which implicates discharge of toxic materials as a primary factor influencing young bass abundance in the Delta. The Final EIR/EIS should include site-specific toxic material discharges areas and specific dischargers, and the related impacts to striped bass populations (all life stages) from toxic discharges into the waters of the Bay Delta. (See Page 3F-5)

3F-5)
27. The Draft EIR/EIS states that the Delta SOS simulations cannot encompass all operation permutations that could occur such as operational decisions at the discretion of DW, DWR, USBR, or the Board. The Board (Edward Anton, Chief, Division of Water Rights) on a consistent basis has approved water transfers simply with the approval of the DFG regardless of the potential direct, indirect, and cumulative impacts to public trust resources because written detailed environmental assessments were not prepared by the Board's staff, DWR or the DFG for water transfers. Also, site specific environmental monitoring programs were not included with the Board's approval of water transfers. Without monitoring, there is no assurance of compliance of terms and conditions in the water transfers approved by the Board's staff.

D9-27

It is not clear what operational decisions are at the Board's discretion nor is it clear how the magnitude of the potential direct, indirect, and cumulative effects on public trust resources as a result of the proposed DW Project can be accurately assessed considering this operational uncertainty in the Draft EIR/EIS. The Final EIR/EIS should disclose, evaluate, and mitigate those potential adverse direct, indirect, and cumulative impacts to public trust resources relating to operational criteria for the DW Project concerning storing and diverting water transfer water, water bank water, and also storing and diverting surplus water. (See Page 3F-10 - Second Paragraph Right Column)

# Sacramento River - Chinook Salmon - DW Project Discharges

28. Reduced Sacramento River flows should be disclosed in the Draft EIR/EIS and included in the list of major concerns about chinook salmon when DW discharges are diverted during April-June. (See Page 3F-20)

The effect of reduced Sacramento River flow on chinook salmon mortality index due to export of DW discharges should be disclosed in the Final EIR/EIS. (See Page 3F-20; Column 2, Paragraph 2)

D9-28 cont'd

# Optimal Salinity Habitat - Again

29. The salinity habitat changes in the Draft EIR/EIS is decribed as being small, but fails to take into consideration the risk of additional entrainment of public trust resources. Much of the habitat for Delta smelt and striped bass is in the vicinity of the pumps, and now additional cumulative sources are being added by the DW Project, expanding the risk to public trust resources because of the DW Project. The Final EIR/EIS should reevaluate salinity habitat and the resulting changes and associated direct and cumulative impacts to public trust resources as a result of the DW Project. (See Page 3F-21)

D9-29

# Potential Species Specific Effects - Striped Bass Transport

30. It is our understanding it is inaccurate to infer striped bass eggs and larve in the San Joaquin River are less than likely to be entrained since very little of the San Joaquin River is downstream of the central Delta. Any problems with entrainment of eggs and larve in the central Delta would also exist for these life stages produced in the lower San Joaquin River, because they would be transported to the central Delta. The Final EIR/EIR should disclose and clarify this issue. (See 3F-21 at Paragraph 3).

D9-30

# Indirect and Cumulative Impacts to Sacramento River Flow

31. The indirect impacts described in the Draft EIR/EIS should be amended to disclose the potential cumulative impacts that would result from reduced Sacramento River flows that would likely occur if water is held behind upstream dams when DW water is released for export. (See Page 3F-21 at Paragraph 4)

D9-31

# American Shad Entrainment

32. There is significant entrainment of American shad at the SWP and CVP pumps from August-October also. Many American shad do not enter the central Delta as supported by the millions salvaged at the CVP and SWP. (See Page 3F-22 at Column 1)

D9-32

The Final EIR/EIS should provide mitigation measures which prevents additional cumulative losses to American shad as a result of the DW Project using the state and federal pumps.

# Delta Smelt Impacts

33. The assumptions and calculations in the Draft ETR/ETS that conclude that there is a net increase in optimal salinity for Delta smelt are not consistent with the results of the X-2 shift displayed in Table 5-5 of Appendix F-2. The extent of decreases in Delta outflow are likely to result in significant reductions in optimal salinity habitat. (See Page 3F-23 at Paragraph 1)

It strongly appears that DW Project operations has the potential to cause adverse impacts to Delta smelt when outflow and habitat for Delta smelt will decrease due to reduced upstream reservoir releases when DW Project discharges are being exported and when DW Project is diverting water.

Amend the Draft EIR/EIS to show that Delta smelt will be impacted as a result of decreases in Delta outflow and decreases in optimal salinity habitat resulting from the DW Project.

# Longfin Smelt Impacts

34. The remaining longfin smelt spawn primarily in the Sacramento River. In high outflow years, entrainment is not a problem. However, during low flow years when longfin smelt spawn higher in the system and DW pumping during February (peak larval abundance) will result in a new source of entrainment. (See Page F-23)

The 5.6% increase in entrainment of public trust fishery resources is not acceptable. Winter diversions, especially January-March act as an adverse impact. During low outflow years, longfin smelt spawning habitat shifts into the Delta and upstream, resulting in adverse increased salvage/entrainment of migrating adults and subsequent pelagic larvac which then have to pass through the Delta or use it as rearing habitat. Increasing exports during the January to March period in a series of dry or critical dry years have the potential to reduce longfin smelt abundance to a level they might not recover from as a result of the DW Project.

# Sacramento Splittail Impacts

35. The DW Project operations has the potential to adversely impact splittail spawning habitat upstream to the extent that reservoir releases are reduced when DW discharges are being exported. (See Page 3F-23 at Column 2)

The Final EIR/EIS should disclose, evaluate, and mitigate cumulative impacts to splittail spawning habitat

D9-33

D9-34

when upstream reservoir releases are reduced when the DW Project is exporting water.

The Final EIR/EIS should disclose and evaluate the cumulative impacts to longfin smelt during low water years when the DW Project will be pumping during February, and when the DW Project will be exporting water during dry and critically dry years, and during the January to March period.

De Facto Threatened or Endangered Spring-Run Chinook Salmon of the Sacramento River Watershed

36. The Draft EIR/EIS concludes that Sacramento River races of chinook salmon will not be significantly impacted by the DW Project. (See Page 3F-24; Impacts F-4)

The spring-run chinook salmon resources of the San Joaquin River have been extinguished by dams on tributaries to the San Joaquin River, including the USBR Friant Dam on the main stem. Population levels of spring-run chinook salmon in the Sacramento River watershed have declined significantly. The Final EIR/EIS should disclose the status of the spring-run chinook salmon in both the san Joaquin River watershed and in the sacramento River watershed.

The spring-run chinook salmon of the Sacramento River watershed is now being considered for state listing (CESA) and is vulnerable to a similar extent than winter-run chinook salmon. The California Fish and game Commission is expected to receive the DFG recommendation on whether to list spring-run under the protection of the CESA at its January meeting. In the event the spring-run is accepted as a candidate by the Commission, a year long formal review period will begin. During that year, spring-run chinook salmon will receive protection pursuant to CESA. We believe the SWRCB should not act on the Draft EIR/EIS and hold any hearing on DW water right application until a recovery plan for spring-run is prepared and implemented by DFG because new information may be available, including new mitigation and protection measures.

The jeopardy risk of DW Project diversions for storage to Sacramento River fish whether they are winter-run, spring-run, Delta smelt, or striped bass goes beyond those that are entrained into the Delta Cross Channel or Georgiana Slough.

Impacts to all races of Sacramento River chinook salmon are significant and any reduction to these races of salmon (all life stages) and its habitat is not acceptable. The Final EIR/EIS should treat the spring-run either as threatened or endangered for the purpose of disclosing, evaluating, and mitigating potential significant impacts in the Final EIR/EIS.

D9-35 cont'd

# DW Project Environmental Resources Fund

37. DW Properties offer to contribute \$2 for each acre-feet of water sold for Delta export to fund ecological research in the Bay Delta Estuary. No monies from the fund will be allocated to fulfill project permit requirements. The fund would be administered by DW and an invited committee established to decide how research would be allocated. The committee will likely include representatives from the DFG, USFWS, USNMFS, SWRCB, DW, fishery-oriented and water fowl oriented organizations, and one general environmental organization.

The concept of the fund and the committee is a very good idea, however it may promote the exporting of water from the Bay Delta. The Draft EIR/EIS did not disclose the value of water per acre-foot that DW will sell and/or transfer from the reservoir islands. Based on Governor Wilson's Water Bank Program water transferred over the past few years had a value between \$50 to \$125 per acre-foot. In future years, the value of water should increase. DW Project under alternative 1 and 2 have the potential to store annually 238,000 acre-feet of water. Consequently the value of DW stored water at the reservoir islands at full capacity is between \$11,900,000 to \$29,750,000.

We understand that DW has made this offer, and that it is not a requirement. However, we believe it would be reasonable for DW to offer 7 and 1/2% of the gross selling price of water stored and diverted at the reservoir islands for all project purposes, and not simply the exporting of water.

# Water Rights Hearing For the Proposed Delta Wetlands Project

We propose to ask questions in the form of cross examination concerning all of the above metioned CSPA comments at the proposed water rights hearing at the water rights hearing for the DW application. We are requesting that the above mentioned comments are included as key issue at the hearing.

That concludes the comments of the CSPA. Please comment of the above mentioned CSPA comments and include the response in the Final EIR/EIS. Please forward a copy of the Final EIR/EIS to this writer.

# Respectfully Submitted

Robert J. Baiocchi, Consultant

For: California Sportfishing Protection Alliance, WR

Protestant P.O. Box 357

Quincy, CA 95971

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## Certificate of Service

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Division of Water Rights
State Water Resources Control Board
P.O. Box 2000
Sacramento, CA 95812-2000

Jim Monroe Regulatory Branch U.S. Army Corps of Emgineers 1325 J Street Sacramento, CA 95814

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John Turner, Chief Environmental Services Department of Fish and Game 1416 Ninth Street Sacramento, CA 95814

David Kennedy, Director Department of Water Resources 1416 Ninth Street Sacramento, CA 95814

Roger Patterson, Regional Director U.S. Bureau of Reclamation 2800 Cottage Way Sacramento, CA 95825

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Interested Parties

## **California Sportfishing Protection Alliance**

- As described in the 1995 DEIR/EIS, all existing and any future Delta water quality standards adopted by the SWRCB or other regulatory agencies would be applicable to the proposed diversions. Project operations for water storage would not be allowed to violate applicable Delta water quality objectives and public trust values or interfere with the ability of other projects to meet the objectives. In the impact assessment of Delta Wetlands Project effects, it was assumed that the project would be required to operate under all applicable standards for protection of Delta water quality, fish and wildlife uses, and other resources; it was also assumed that the project would be precluded from interfering with the ability of those holding prior water rights to comply with Delta standards. The analysis of project effects presented in the 2000 REIR/EIS used a new simulated baseline condition. The new baseline incorporates Delta operating criteria and standards established as a result of state and federal programs implemented since publication of the 1995 DEIR/EIS.
- **D9-2.** See response to Comment D9-1.
- **D9-3.** See Master Response 1, "Project Objectives: Analyzing Effects of Water Transfers, Banking, and Augmenting Outflow", for a discussion regarding use of the Delta Wetlands Project for water transfers and water banking.
- D9-4. The Delta Wetlands Project would not interfere with entitlements by senior water rights holders, including counties along the Sacramento or San Joaquin Rivers, as stated on page 2-7 of the 1995 DEIR/EIS (page 2-9 of Volume 1 of this FEIS) under "Timing and Rate of Diversions onto the Reservoir Islands". Assumptions about operations of the Delta Wetlands Project in relation to diversions by senior water right holders and to operations of the SWP and CVP are detailed on pages 3A-10 through 3A-12 of the 1995 DEIR/EIS (pages 3A-12 through 3A-14 of FEIS Volume 1). As described in Chapter 2 under "Coordination with Water Rights, Delta Standards, and Fish Take Limits" permits granted by the SWRCB would require that project diversions not interfere with the diversion and use of water by other users with riparian or prior (senior) appropriative rights. See also response to Comment B7-1.
- **D9-5.** See Master Response 3, "Areas of End Use and Potential Growth-Inducement Effects of Delta Wetlands Water Deliveries".
- D9-6. The commenter is correct in noting that water transfers and water banking currently occur without the Delta Wetlands Project. The project description states that the purpose of the project is to "divert surplus Delta inflows, transferred water, or banked water for later sale and/or release for Delta export or to meet water quality or flow requirements for the Bay-Delta estuary". The analysis of effects of the Delta Wetlands Project focuses on the use of the project as a stand-alone water storage facility for storing surplus inflows to meet the existing and anticipated future demand for water supply. See also Master Response 1, "Project Objectives: Analyzing Effects of Water Transfers, Banking, and Augmenting Outflow".

- **D9-7.** See response to Comment D2-2.
- D9-8. Delta Wetlands Project operations would not affect upstream reservoir releases. The project would need to be integrated with SWP and CVP operations for this to occur. See Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program". It should be noted that the CVP and SWP must meet the upstream temperature criteria under SWRCB Order 90-5 and the biological opinion for SWP and CVP effects on winter-run chinook salmon. If the SWP or CVP purchase Delta Wetlands water as a replacement for upstream reservoir releases, the SWP and CVP would still need to meet existing instream flow and temperature requirements.
- **D9-9.** See Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program".
- D9-10. Since this comment letter was submitted, the lead agencies have concluded formal consultation with DFG, NMFS, and USFWS on the effects of the Delta Wetlands Project on listed fish species. As part of the consultation process for compliance with the federal and California ESAs, USACE, the SWRCB, NMFS, USFWS, DFG, and Delta Wetlands agreed on the project operating parameters referred to as the FOC, which have been incorporated into the proposed project. DFG subsequently issued a no-jeopardy biological opinion for project effects on delta smelt and winter-run chinook salmon; NMFS issued no-jeopardy biological opinions regarding project effects on winter-run chinook salmon, Central Valley steelhead ESU, and Central Valley spring-run chinook salmon and their habitats; and USFWS issued no-jeopardy biological opinions regarding project effects on delta smelt and splittail and their habitats. The biological opinions include RPMs to reduce or compensate for the incidental take of listed species. The FOC and RPMs reduce all potential project impacts on these species to a less-than-significant level and provide protections for nonlisted species. If the lead agencies approve Delta Wetlands' permit applications, Delta Wetlands will be required to implement the terms of the biological opinions as part of its operating conditions. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for details about the formal consultation and discussion of the terms of the biological opinions.
- **D9-11.** The relationship between optimal salinity habitat and fish abundance is difficult to evaluate; however, project impacts on optimal salinity habitat were evaluated in the 1995 DEIR/EIS based on a methodology that recognized a significant relationship between indices of fish abundance and availability of optimal salinity habitat. DFG, NMFS, and USFWS addressed concerns about optimal salinity habitat by including in the FOC several terms that directly limit the change in the location of X2 that Delta Wetlands diversions would be allowed to cause. These terms are described generally in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", and are detailed in response to Comment A7-3.

- **D9-12.** See response to Comments B7-64 regarding predation at Delta Wetlands facilities. All siphons and pumps used under Delta Wetlands Project operations would have fish screens. See response to Comment B6-60 regarding the design for fish screens.
- **D9-13.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities", which describes the potential effects of boat use on aquatic habitat and mitigation to reduce and compensate for those effects. See also response to Comment B6-11 regarding project effects on channel islands on the northeastern side of Franks Tract and in Santa Fe Cut.
- **D9-14.** The biological opinions include terms that limit the effects of Delta Wetlands discharges on DO levels. See "Project Effects on Dissolved Oxygen Levels" in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".
- **D9-15.** As described in response to Comment B6-18 from DFG, the activities of current and former landowners of the Delta Wetlands Project islands conducted under the Delta Flood Protection Act (SB 34) program are not part of the proposed project or project alternatives. These activities, regulated by DWR, are subject to separate environmental review and mitigation requirements. For the Delta Wetlands Project, the following project elements identified in the California and federal ESA biological opinions would minimize and avoid, where feasible, effects on habitat and would replace lost habitat:
  - # Conserve in perpetuity 200 acres of shallow-water rearing and spawning habitat.
  - # Contribute \$100 per year per additional boat berth for boat-wake-erosion mitigation.
  - # Mitigate on a 3:1 basis for aquatic habitat lost to construction activities.
  - # Limit in-water construction to June through November.
  - # Avoid areas of immersed and submersed plants while riprap is placed and diversion and discharge structures are built.
- **D9-16.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".
- **D9-17.** See Master Response 3, "Areas of End Use and Potential Growth-Inducement Effects of Delta Wetlands Water Deliveries".
- **D9-18.** The No-Project Alternative analyzed in the 1995 DEIR/EIS and the 2000 REIR/EIS meets the requirements of CEQA and NEPA. Section 15126.6(e)(3) of the State CEQA Guidelines states that the no-project alternative "is the circumstance under which the project does not proceed. If disapproval of the project under consideration would result in predictable actions . . . this 'no project' consequence should be discussed". The

commenter refers to several potential sources of future water supply to the Delta. However, the quantity and timing of these inflows are not predictable, and modeling of such future increases would be too speculative for impact analysis purposes. Also, the effects of Delta Wetlands diversions on water quality (i.e., salinity) and fish may be understated if higher inflows are assumed as a basis for the impact assessment.

Furthermore, it cannot be assumed that future increases in inflows to the Delta would meet the demands for water storage and transfers, making the Delta Wetlands Project obsolete. As documented in the 2000 REIR/EIS, Delta Wetlands Project operations were analyzed using a 1995 level of demand for water. The analysis showed that south-of-Delta delivery deficits exist in most years under this assumed level of demand. However, demand for water has already increased above this level, and future demands can be expected to be greater as well. For example, in the last year, the CVPIA b(2) rules have been interpreted much more strictly than before; as a result, projected effects on CVP agricultural contractors (i.e., delivery deficits) are greater than they were a few years ago. In addition, the CVP must obtain and wheel "Level 4" water supplies of about 200 TAF to wildlife refuges. Also, the CALFED EWA represents a new, additional purchaser of stored water. The Metropolitan Water District has begun filling the Diamond Valley Reservoir, which was not included in the baseline. These changes all reflect greater demand for water than the demand assumed for the 2000 REIR/EIS simulations of Delta Wetlands Project operations. As the population of the state increases, overall demands for water will increase to a 2020 level of demand, and the unmet demand for beneficial uses of water in the San Joaquin Valley and Southern California will also increase.

**D9-19.** Implementing the Delta Wetlands Project would not reduce public access or opportunities for recreation on the project islands. See response to Comment B6-21 regarding the provision of public recreation on the Delta Wetlands Project islands.

See responses to Comments B6-33 and B6-42 regarding project effects on striped bass. See also "Indirect Effects of Delta Wetlands Project Diversions and Discharges on Flows, Downstream Transport, Area of Optimal Salinity Habitat, and Entrainment" in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

D9-20. As stated in response to Comment B6-9, the following definition was applied to significance of direct impacts in the 1995 DEIR/EIS (see page 3F-13 of the 1995 DEIR/EIS [page 3F-15 of Volume 1 of this FEIS]): "[I]mpacts were considered significant if it was determined that conditions contributing to existing stress would be worsened by Delta Wetlands Project operations and facilities, resulting in a substantial reduction in population abundance and distribution". As further noted, the definition of a "substantial" reduction varies with each species; it depends on the ability of the population to maintain or exceed current production levels through mechanisms that compensate for reduced abundance of earlier life stages. Impacts were considered cumulatively significant if project operations and facilities would contribute to existing or future stress that causes or would cause a

substantial reduction in population abundance and distribution. The definitions of significance used in the EIR/EIS are consistent with CEQA and NEPA.

All potential effects of project operations on aquatic species are addressed by the FOC and RPMs described in the biological opinions. These measures include restrictions on project diversion and discharge operations, measures to compensate for project effects on habitat, and a comprehensive monitoring program. The measures described in the biological opinions replace the mitigation measures presented in the 1995 DEIR/EIS for the proposed project.

See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for more information about the results of the formal consultation and about terms of the biological opinions.

- **D9-21.** See responses to Comments B6-7 and B6-24.
- **D9-22.** It is not known at this time how Delta Wetlands Project operations, if coordinated with or integrated into the operations of upstream reservoirs, could substitute for upstream flow releases to meet Bay-Delta outflow requirements. The NEPA and CEQA analysis does not speculate on the variety of ways that the project could be incorporated into other water operations. See Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program", regarding this issue.

As described in Chapter 2 under "Coordination with Water Rights, Delta Standards, and Fish Take Limits", permits granted by the SWRCB require that project diversions not interfere with the diversion and use of water by other users with riparian or prior (senior) appropriative rights. Additionally, as described in Chapter 2 of the 2000 REIR/EIS and of FEIS Volume 1, Delta Wetlands has entered into stipulated agreements with several parties, including DWR and USBR, that reaffirm the seniority of these parties' water rights and ensure that project operations would not interfere with the ability of those parties to exercise their rights.

- **D9-23.** See response to Comment B6-28.
- **D9-24.** See Master Response 1, "Project Objectives: Analyzing Effects of Water Transfers, Banking, and Augmenting Outflow", for a discussion regarding use of the Delta Wetlands Project for water transfers and water banking.
- **D9-25.** See responses to Comments B6-11 and B6-31 regarding effects of Delta Wetlands Project discharges on local channel conditions.
- **D9-26.** The passage on page 3F-5 of the 1995 DEIR/EIS referred to by the commenter (see page 3F-6 of Chapter 3F of FEIS Volume 1) lists several environmental conditions that are assumed to affect year-class abundance of striped bass. The potential factors listed are the

location of X2; entrainment of eggs, larvae, and juveniles in Delta diversions; and discharge of toxic materials *into rivers tributary to the Delta*. Delta Wetlands operations would not affect discharges of toxic materials into rivers tributary to the Delta; therefore, this factor was not discussed further. Adding this information would not change the analysis of project effects on striped bass; therefore, no information needs to be added to the analysis.

**D9-27.** The best available tools were used to predict Delta Wetlands Project operations under a range of hydrologic conditions and within the objectives of the 1995 WQCP. Direct, indirect, and cumulative impacts of the project have been fully disclosed. See response to Comment B6-34.

Operation of the Delta Wetlands Project involving transferred or banked water would likely require additional approvals from the SWRCB and additional environmental documentation; SWRCB approval of Delta Wetlands' water right permits does not constitute approval of use of the project islands for transfers or water banking. For more information about this subject, see Master Response 1, "Project Objectives: Analyzing Effects of Water Transfers, Banking, and Augmenting Outflow".

The FOC terms include a comprehensive monitoring program that is summarized in Master Response 4. For more detail, see the attachment to the FOC entitled "Delta Wetlands Fish Monitoring Program" in Appendix B of the 2000 REIR/EIS.

**D9-28.** Delta Wetlands Project operations, as described in the 1995 DEIR/EIS, would not affect flows in the Sacramento River. See response to Comment B6-40 and Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program".

See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for a description of the biological opinion measures incorporated into the project description that reduce potential project impacts on winter-run and spring-run chinook salmon to a less-than-significant level.

- **D9-29.** The risk of additional entrainment attributable to changes in salinity habitat is integrated in the analysis of transport effects (Impacts F-5 and F-7 in the 1995 DEIR/EIS [see page 3F-28 in Volume 1 of this FEIS]. The methodology is explained in Appendix F2 of the 1995 DEIR/EIS. See response to Comment A7-3 regarding FOC measures that limit project effects on optimal salinity habitat by limiting effects on X2.
- **D9-30.** Entrainment of striped bass was evaluated based on the historical distribution. A significant impact was identified (Impact F-5) and mitigation was proposed. See response to Comment B6-33.
- **D9-31.** Delta Wetlands Project operations, as described in the 1995 DEIR/EIS, would not affect Sacramento River flows or the operations of upstream reservoirs. See Master Response 2,

- "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program".
- **D9-32.** See response to Comment B6-43.
- **D9-33.** See response to Comment B6-44. See also Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program", for a discussion of the relationship between project operations and upstream reservoir releases.
- **D9-34.** See response to Comment B6-45.
- D9-35. The commenter is concerned that Delta Wetlands Project operations could adversely affect splittail spawning habitat upstream to the extent that reservoir releases are reduced when project discharges are being exported, and requests that the NEPA and CEQA analysis evaluate cumulative impacts on upstream habitat for splittail. Delta Wetlands Project operations, as described in the 1995 DEIR/EIS, would not affect the operations of upstream reservoirs. See Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program".

The commenter also requests that the NEPA and CEQA analysis evaluate cumulative impacts on longfin smelt during years of low flows. The commenter's concerns about project effects on longfin smelt have been addressed by the FOC measures to protect listed species. See response to Comment A5-6 and Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

- **D9-36.** See response to Comment B6-47 regarding the relationship between Delta Wetlands Project operations and impacts on Sacramento and San Joaquin River juvenile salmon. See response to Comment B6-8 regarding protections for spring-run chinook salmon provided by the FOC and terms of the NMFS and DFG biological opinions.
- **D9-37.** Delta Wetlands' contribution of \$2 per acre-foot of exported water toward a research fund is not expected to affect project operations or the amount of water exported. Delta Wetlands' contribution to an environmental research fund is not required by the lead agencies as mitigation; therefore, compliance with the request that Delta Wetlands contribute a greater amount per acre-foot of water is at Delta Wetlands' discretion.

# Letter D10

# California Native Plant Society

1755 4th Ave. Sacramento, CA 95818 December 19, 1995

U.S. Army Corps of Engineers Regulatory Branch Attention: Jim Monroe 1325 J Street, Room 1444 Sacramento, CA 95814-2922

Dear Mr. Monroe:

# Draft Environmental Impact Report and Environmental Impact Statement for the Delta Wetlands Project

The Sacramento Valley Chapter of the California Native Plant Society is pleased to provide input on the Draft EIR/EIS for the Delta Wetlands Project. We have limited the scope of our comments to botanical issues.

- 1. Chapter 3G. Affected Environmental Consequences Vegetation and Wetlands. This chapter states that if special status plants are inadvertently affected, then DW shall contact DFG and negotiate appropriate mitigation. We recommend that the mitigation measures be provided for our review. The mitigation measures should have criteria to assess the success of the mitigation and remedial measures should mitigation fail.
- 2. Appendix G2. Prediction of Vegetation on the Delta Wetlands Reservoir Islands. We highly recommend that a revegetation plan be developed that contains the information needed to implement the creation of the mitigation habitats. The revegetation plan should contain, at a minimum, the following information.
  - a. Baseline information on the cover, density, and species richness of the desired habitat types should be provided. This information can be obtained from nearby, off-site reference areas if baseline information cannot be obtained on site and will form the basis of developed performance standards.
  - b. The species, seeding rates, and methodology should be described. Any species chosen for an erosion control mix

D10-1

D10-2



D10-2 cont'd

should be native and not be invasive in the created wetland areas. Similarly, plants that will be installed as rooted or unrooted material should be listed to the species level.

- c. The source(s) of plant material are not listed. Harvesting of off-site wetland vegetation for use in site revegetation can result in the degradation of the off-site wetland.
- d. The potential for and/or existing problems with invasive exotic species and their eradication should be discussed.
- e. Specific planting densities and the spatial arrangement for emergent and riparian species should be 'provided.
- f. The revegetation plan should include performance standards for density, species richness, erosion control, and weed abatement. Performance standards proposed for the recreated emergent marsh and riparian habitats are lacking in specificity.
- g. The revegetation plan should describe the specific remedial measures to be implemented if revegetation is not successful according to performance criteria.
- h. Broadcasting seed of cottonwood and willow is not recommended. These species propagate best by stem cuttings.

Thank you for the opportunity to review this well prepared document.

Sincerely,

Karen week

Karen Wiese, Member Sacramento Valley Chapter

cc: Eva Butler, President, Sacramento Valley Chapter

George Clark, Statewide President, CNPS

Mona Robison, Conservation Chair, Sacramento Valley Chapter

## **California Native Plant Society**

**D10-1.** Mitigation of project impacts on special-status plant species is described on page 3G-12 of Volume 1 of this FEIS. Chapter 3G of the 1995 DEIR/EIS has been changed to broaden mitigation requirements for impacts on special-status plant species. The last paragraph under "Mitigation Measure G-2: Protect Special-Status Plant Populations from Construction and Recreational Activities" (see page 3G-13 of FEIS Volume 1) has been revised as follows:

Areas that support special-status plant populations shall not be open to recreation. If special-status plant populations are inadvertently affected by construction or recreational uses, Delta Wetlands shall contact DFG and negotiate appropriate mitigation to offset impacts, including development of a mitigation monitoring program and performance standards.

The performance standards would be used to assess the success of the mitigation, and the mitigation monitoring program will provide remedial measures that would be taken should mitigation fail to meet the performance standards. CNPS can request a copy of any such mitigation developed for special-status plant species from DFG.

**D10-2.** Appendix G2 describes predicted vegetation conditions on the Delta Wetlands reservoir islands under storage, nonstorage, and shallow-water wetland project conditions. Although the reservoir islands may be seeded with waterfowl food plants at Delta Wetlands' discretion during nonstorage periods (page G2-4, third paragraph), revegetation of the reservoir islands is not required for mitigation of project impacts. The HMP (Appendix G3) describes a process for developing planting specifications to establish vegetation on the habitat islands (see page 13 of the HMP). Detailed construction specifications and plan drawings, which would include planting plans, would be developed by Delta Wetlands and reviewed by DFG to ensure that compensation habitats are established as described in the HMP.

# Letter D11

Natural Heritage Institute 114 Sansome Street, Suite 1200 San Francisco, CA 94104 (415) 288-0550 (415) 288-0555 fax

December 20, 1995

State Water Resources Control Board Division of Water Rights Attention: Jim Sutton P.O. Box 2000 Sacramento, CA 95812-2000

U.S. Army Corps of Engineers Regulatory Branch Attention: Jim Monroe 1325 J Street, Room 1444 Sacramento, CA 95814-2922 - VIA Fax 516-557-6077

RE: COMMENTS ON THE DELTA WETLANDS PROJECT DRAFT EIS/EIR

Dear Sirs:

The Natural Heritage Institute has the following comments on the Delta Wetlands (DW) Project DEIS/EIR (September 1995).

NHI would like to support the DW Project if possible. The Project has the potential to enhance the environment and ease competition for water while improving the long term survivability of several Delta islands. Unfortunately, NHI cannot support the Project as described in the DEIR/S because it will have negative impacts on the aquatic environment, in contradiction to the spirit of the December Accord. However, we believe that modifications to the project description are possible which would allow NHI to move to a position of support.

NHI supports the conversion of two Delta islands into water storage facilities as proposed by DW if:

- o The terrestrial environment receives net improvements as part of the package.
- o The aquatic environment receives net improvements as part of the package.

Our conclusions are that:

Given our limited resources, we did not analyze the extent to which the Delta Wetlands Project would provide net improvements to the terrestrial environment. Instead, NHI analyzed the impact of the Project upon the aquatic environment.

- 1. The operational rules proposed for the project are based upon a fundamental misreading of the meaning of the December 15 Accord and the SWRCB 1995 WQCP for the Delta.
- 2. The Project, as defined in the DEIR/S will cause significant negative impacts to the aquatic environment.
- 3. The DEIR/S not only ignores the cumulative impacts of future efforts to capture high flows to increase water supplies, but ignores the impacts of water project operations closely linked to the Project.
- 4. These three problems could be resolved by a new set of operating rules.

# Taking these in order:

1. The operational rules proposed for the project are based upon a fundamental misreading of the meaning of the December 15 Accord and the SWRCB 1995 WQCP for the Delta.

The December 15, 1994 Accord represented a paradigm shift in attitudes toward protection of the Bay-Delta system environment Before the Accord, project proponents could treat environmental protection as a simple constraint on project operations. That is, regulatory agencies would set standards (e.g., D 1485) and agencies could then manage water in whatever way they wanted, provided that they did not violate the standards. The result of that older paradigm has been disastrous. Water users became quite adept at extracting more and more water from the system while still maintaining standards. Thus, under D 1485, water exports increased and environmental quality declined dramatically, all without major violations of the standards.

However, the December 15 Agreement was based, not upon minimum standards, but upon the interaction between a set of standards and normal operations by the State and Federal project. No one asserted that the X2 and export limitations were intrinsically protective, only that with California's hydrology and projected state and federal operations, the Delta would receive adequate interim protection. In other words, water flows above those needed to meet the minimum X2 requirements and export pumping below the permitted percentage limits were expected and counted on by the CALFED agencies to provide part of the baseline protections. Additional actions which would change the interaction between operations and environmental protection — such as South Delta Facilities, water transfers, and DW — were not part of the Accord and are not covered by the operational rules in the Accord.<sup>2</sup>

Moreover, the December 15 Accord and the SWRCB actions which followed are based upon the notion that the aquatic environment in the Delta needs to be stabilized at an acceptable level to assure that long term Delta planning can occur without the stress caused by continued biological declines. This implies that no additional action should take place in the Delta while the long-term planning process is underway unless that action is, at worst, neutral with respect to the aquatic environment or (more appropriately) provides net environmental benefits.

Delta Wetlands DEIS/EIR Comments. December 20, 1995. Page 2

<sup>&</sup>lt;sup>2</sup> For example, in determining whether the new standards complied with the Federal endangered species act, the National Marine Fisheries Service (NMFS) and the US Fish and Wildlife Service (USFWS) analyzed, not the standards, but the actual flow patterns (such as QWEST and percentage of Delta inflow exported) projected to occur under the new standards.

The DW DEIR/EIS takes the position that diversions onto the islands would be undertaken whenever extra exports would be allowed under the SWRCB 1995 WQCP and that discharge from the islands could take place for export as long as SWRCB export standards are met (in one option, the project suggests that water from the project for export would not be subject to the percentage entrainment requirement).

D11-1 cont'd

As discussed above, the SWRCB WQCP standards are inappropriate for the DW Project. Instead of assuming the applicability of SWRCB WQCP standards, the Project should define and analyze operational rules which do not intrude upon baseline protections and, preferably, provide net environmental benefits.

The Project, as defined in the DEIR/S will cause significant negative impacts to the 2. aquatic environment.

My comments on impacts have to do with the broad environmental impacts associated with the diversion of water (and the upstream movement of X2) and possible increases in the overall percentage of Delta inflow which is diverted.

The DEIR/EIS acknowledges that the upstream movement of X2 and increases in the percentage of Delta inflow exported will cause negative environmental impacts. However, the DEIR/RIS argues that these impacts can be mitigated to a less than significant level. This analysis is inadequate for several reasons:

As discussed above, it is not sufficient that DW reduce impacts to less than significant 0 levels. Rather, DW operations must fully compensate for all project impacts and should, in fact, provide positive net benefits to the environment. Otherwise, DW would violate the spirit of the December 15 Accord.

Even ignoring the need for full mitigation, the criteria selected for "significant impacts" 0

are arbitrary and ignore X2/species-health data.

As discussed above, the rules which define DW operations should not be connected to the standards set by the SWRCB for the state and federal projects. Therefore, the standard of significance used in the DEIR/EIS which defines as significant any operation which pushes conditions to within 10% of a SWRCB standard is inappropriate. DW operations must be evaluated based upon their own particular impacts, not according to compliance with the SWRCB WOCP standards.

The other standard of significance in the DEIR/EIS is whether a particular parameter changes by more than 20%. This definition of significance is both lenient and arbitrary. Under this definition, major shifts in salinity intrusion can occur without being considered significant in the DEIR/S. The DEIR/S should analyze the sensitivity of the analysis to other measures of significance. For example, if the significance threshold were set at a 5% change in parameters, what would happen to the yield of the project and the impacts of the project?

A related measure, area of suitable habitat, is considered in the fisheries chapter, but then never applied on the grounds that changes in X2 are too small to make any difference. But in any case, there is no scientific evidence on the impact of changing the area of suitable habitat on

D11-3

fisheries. On the other hand, very strong correlations have now been developed between the average value of X2 over particular time periods and indices correlated with the populations for a number of species. Unfortunately, these indicators of significance were not considered in the document. These correlations were the foundation upon which the X2 standards in the SWRCB WQCP were built. Of course, correlations do not mean causation. Nevertheless, these correlations are the best tools we have for predicting biological outcomes. To the extent that DW operations moves X2 upstream, these correlations suggest that the various population indices will move downward. This effect can be easily quantified and mitigation measures designed to compensate for lost productivity could be developed (see below).

Thus, with respect of changes in X2 and the impact of those changes on the environment, the document EIR/S should:

o Perform a sensitivity analysis to show how reducing the arbitrary 20% significance threshold changes project operations.

o Assess environmental impacts according to the correlations between X2 and environmental health.

O Develop operational measures to provide full compensation to the environment for changes in X2. Of course, once these measures have been developed and incorporated into the operational rules, the "significance" threshold becomes less relevant.

DW relies on the same rationale when it comes to entrainment impacts. That is, DW commits not to violate the SWRCB WQCP and commits to reduce (but not eliminate) the entrainment caused by operations through a number of measures. As the DEIR/S indicates, DW operations will increase the percentage of inflows diverted and the entrainment of biota above those assumed in the December Accord. As discussed above, this mode of operation is contrary to the December 15 Accord.

Moreover, as in the case of the X2 discussed above, the determination of significant levels of entrainment is arbitrary. I would assert that, even with the mitigation measures proposed, that entrainment caused by DW remains significant.

Again, rather than argue about what is or is not significant, DW should develop a mechanism to assure full mitigation for entrainment impacts. Some ideas on how this might be accomplished are discussed below.

3. The DEIR not only ignores the cumulative impacts of future efforts to capture high flows to increase water supplies, but ignores the impacts of water project operations closely linked to the Project.

The profitability of the DW Project depends upon finding buyers for the water developed under the agreement. While the water could be purchased for environmental outflow, by far the most likely destination for this water is the export areas -- probably southern California. In order to move this water to the export facilities, DW will discharge stored water back into the Delta channels with concomitant increases in export pumping.

D11-3 cont'd

D11-4

It is difficult to believe that increased export pumping will not increase overall entrainment of fish. This increase may be muted to some degree due to the fact that the DW discharge point is south of the San Ioaquin River. Nevertheless, the DEIR/EIS does not analyze the possible increases in entrainment due to the delivery of DW water to the export pumps. This effect is not analyzed as an impact of the Project, nor even as a cumulative impact of the Project — despite the fact that the profitability of the entire enterprise probably depends upon this increased export pumping!

The DEIR/EIS also does not analyze the possible cumulative impacts from other projects designed to capture high flows for later use. A number of such projects are now being under discussion upstream of the DW Project. Several such projects, operated under rules similar to those proposed for DW could dramatically change Delta flow patterns — even if the proposed mitigation measures are implemented.

4. These three problems could be resolved by a new set of operating rules.

The problems identified are solvable if the operating rules were designed to provide full compensation to the environment (as opposed to merely limiting damage based upon an arbitrary definition of "significance"). If carefully structured, such rules could retain most of the project yield projected in the DEIR, while encouraging DW to operate in an environmentally sensitive fashion in its own self interest.

The rules could be based upon the following considerations:

X2

O Average X2 is correlated with numerous measures of environmental health. The farther downstream average X2 moves, the higher the indices of health.

The movement of X2 downstream is related logarithmical to Delta outflow. At high flows, therefore, reductions in Delta outflow have a small effect on X2. At low Delta outflows, increases in Delta outflow can have a large effect on X2.

This non linearity of X2 provides the basis for mutually beneficial operations. That is, additional yield can be developed from the system, by extracting water at periods of high flow, then boosting outflows during periods when X2 is farther upstream. Average X2 remains constant, but yield is increased.

The water used to increase Delta outflow during lower flow periods could come from the islands (thereby reducing yield). Alternatively, DW could purchase water upstream to boost environmental flows. The option of purchasing upstream water is probably preferable, since the release of that water would have greater environmental benefits, would not reduce project yield, and might be cheaper per acre-foot than water stored on the islands is worth.

# DIVERSIONS ONTO DELTA ISLANDS

The entrainment impacts of diversions onto Delta islands vary according to time of year, ambient conditions (Delta inflow, Delta outflow), species populations, and real time conditions. Some entrainment already occurs as a result of farming operations on the islands.

Deita Wetlands DEIS/EIR Comments, December 20, 1995, Page 5

D11-5 cont'd

D11-6

D11-7

cont'd

Rough rules for diversions and full mitigation could be developed using the time of year, ambient physical conditions and real time biological conditions. In general, compensation would be required from DW in rough proportion to the amount of damage done by entrainment greater than the entrainment already occurring on the islands. Compensation could take the form of money (which could be used to screen diversions elsewhere), or flows to increase productivity (as discussed above).

# Rediversion for Export

To the extend that DW develops new water for export, fish will experience entrainment impacts twice -- once when the water is diverted onto the islands, once when the water is rediverted into the export pumps. This second diversion must also be fully mitigated.

The amount of additional damage caused by rediversion can be estimated through modelling. Since DW would be discharging water south of the San Joaquin River for delivery to the export pumps, the problem should not be difficult to solve. If DW abandoned a percentage of the water discharged (i.e., the export pumps would only pick up a fraction of the water discharged by DW), then net flows toward the pumps from north of the DW discharges might be reduced despite the increased export pumping (particularly if the discharges take place when the Old River Barrier is in place. If the barrier is not in place, the hydrodynamics would be more complex). Therefore, it should be possible to estimate the amount of carriage water needed to assure that the DW rediversions do not cause additional entrainment problems.

Of course, if DW were ever to build an overland connector to the export pumps, this mitigation would no longer be necessary.

Thus, new operational rules should be possible which fully compensate the aquatic environment for project operations should be possible without major impacts on the profitability of the project. By linking the levels of mitigation to the size of the impacts in real time, DW will be encouraged to operate in an environmentally sensitive fashion in its own interest.

I hope that these comments are helpful.

Sincercly,

David Fullerton Staff Scientist

CC

John Winther Gary Bobker Delta Wetlands
Bay Institute

Delta Wetlands DBIS/EIR Comments, December 20, 1995, Page 6

## **Natural Heritage Institute**

**D11-1.** The 1995 WQCP objectives were selected as the most appropriate initial operational criteria for evaluating the potential impacts of Delta Wetlands Project operations. See responses to Comments A4-7 and A7-2.

The FOC terms, developed through the federal and California ESA consultation process, place parameters on Delta Wetlands Project operations to ensure that the project would not compromise the protection measures included in the 1995 WQCP and the Water Accord. These terms address potential effects of the project on outflow, X2, and entrainment. The FOC and biological opinion RPMs include other measures, such as conserving in perpetuity 200 acres of shallow-water rearing and spawning habitat and mitigating on a 3:1 basis the loss of aquatic habitat to construction activities. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

**D11-2.** DFG, NMFS, and USFWS addressed concerns about optimal salinity habitat and project effects on X2 by including in the FOC several terms that directly limit the change in the location of X2 that Delta Wetlands diversions would be allowed to cause. These terms are described generally in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", and are detailed in response to Comment A7-3.

See also Master Response 6, "Significance Criteria Used for the Water Quality Impact Analysis", for further discussion of the significance criteria used in the analysis.

- D11-3. The scientific evidence for optimal salinity habitat is the same as the evidence for X2 (see Appendix A to the biological assessment, which is Appendix F2 of the 1995 DEIR/EIS). DFG, NMFS, and USFWS addressed concerns about optimal salinity habitat and project effects on X2 by including in the FOC several terms that directly limit the change in the location of X2 that Delta Wetlands diversions would be allowed to cause. These terms are described generally in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", and are detailed in response to Comment A7-3.
- **D11-4.** See response to Comment B6-9 regarding the definition applied to significance of direct impacts in the 1995 DEIR/EIS. The definitions of significance used in the analysis are consistent with NEPA and CEQA.

The FOC terms, developed through the federal and California ESA consultation process, reduce all potential project impacts on fisheries identified in the 1995 DEIR/EIS to a less-than-significant level. The parameters placed on Delta Wetlands Project operations by the FOC ensure that the project would not compromise the protection measures included in the 1995 WQCP or violate the spirit of the Water Accord. See Master Response 4,

"Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for details about the FOC and RPMs for the Delta Wetlands Project.

- **D11-5.** Exporting water discharged from the Delta Wetlands reservoir islands would increase entrainment of fish at the SWP/CVP facilities. This increase in entrainment was shown in Appendix F2 of the 1995 DEIR/EIS and was acknowledged in the following impacts:
  - # Impact F-4, Potential Increase in the Mortality of Chinook Salmon Resulting from the Indirect Effects of Delta Wetlands Project Diversions and Discharges on Flows;
  - # Impact F-5, Reduction in Downstream Transport and Increase in Entrainment Loss of Striped Bass Eggs and Larvae, Delta Smelt Larvae, and Longfin Smelt Larvae; and
  - # Impact F-7, Increase in Entrainment Loss of Juvenile Striped Bass and Delta Smelt.

The FOC and biological opinion RPMs reduce these impacts to a less-than-significant level. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

- **D11-6.** See response to Comment C9-52.
- D11-7. The operating rules described in the FOC and incorporated into the proposed project mitigate potential project impacts on fish species and their habitats. The FOC terms include a comprehensive monitoring program and project operating rules that respond to daily conditions. Both the 1995 DEIR/EIS (see Appendix A4) and the 2000 REIR/EIS (see Appendix F) discuss the potential daily Delta Wetlands operations that would be modified as daily Delta flow and salinity conditions change. Appendix F of the 2000 REIR/EIS indicates how the requirements identified in the FOC for the project would limit daily operations. Measures to protect fish include FOC terms that specify several periods of delay for the beginning of Delta Wetlands diversions, including restrictions based on X2 location, and reductions in Delta Wetlands operations when the FMWT index is less than 239. The FOC also include provisions to reduce Delta Wetlands pumping or diversions if protected fish are observed in the required daily fish monitoring. The FOC terms are expected to protect fish from Delta Wetlands Project impacts under all possible daily conditions for Delta flows, salinity, and fish abundance. The RPMs in the state and federal biological opinions add further protections and compensation for incidental take of protected species.

As described in response to Comment D11-5, the 1995 DEIR/EIS reported that the project could increase entrainment of fish at the SWP and CVP facilities.

See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for a summary of the FOC and RPMs.

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RE: DRAFT EIR/EIS FOR THE DELTA WETLANDS PROJECT

Executive Director

Dear sirs:

David Behar

This letter is submitted as the comments of The Bay Institute of San Francisco on the Draft Environmental Impact Report/Environmental Impact Statement (Draft EIR/EIS) for the Delta Wetlands Project (Project); water right applications 29061, 29063, 29066, and 30267, 30268, 30269 and 30270 before the State Water Resources Control Board (SWRCB); petitions before the SWRCB to change the applications; and application to the U.S. Army Corps of Engineers (USACE) for a permit pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act in Contra Costa and San Joaquin Counties.

The Bay Institute opposes certification of the Draft EIR/EIS, approval of water rights petitions and amendments by SWRCB, and issuance of permits by USACE, at this time. The Delta Wetlands Project as currently proposed would cause extremely significant adverse impacts to endangered fish species, other aquatic resources, and habitat and water quality conditions in the San Francisco Bay-Delta estuary. These adverse impacts include but are not limited to:

D12-1

o estuarine habitat degradation from the upstream movement of the 2 ppt salinity isohaline (X2) and reduction of Delta outflow in almost all years as a

result of Project diversions;

o indirect losses of endangered fish species and other resources from disruptions of fish migration, increased entrainment at the state and federal export facilities in all years, increased temperatures, and other results of Project diversions and discharges; and,

o replacement of releases from the upper watershed of the estuary with less biologically significant Project discharges to help achieve Delta outflow requirements.

We believe that the Project has the potential to offer important water supply and environmental benefits if operated under a set of much more narrowly prescribed terms and conditions, over and above the terms and conditions for existing water projects contained in the 1995 Bay-Delta Water Quality Plan (1995 WQCP). Such terms and conditions would greatly restrict Project operations during the peak spawning and migration periods; concentrate on use of remaining low impact windows for diversion to and discharge from Project storage; and provide for comprehensive mitigation of residual impacts. The alternatives considered in the Draft EIR/EIS do not meet these criteria.

The Project assumes that compliance with current water quality standards will largely offset its non-localized impacts

Project compliance with the X2 requirements and export criteria contained in the 1995 WQCP is not adequate to prevent significant adverse impacts to estuarine habitat and biological resources in the estuary. Modeling by federal and state agencies of the impacts of the 1995 WQCP standards assumed baseline conditions of water project operation for storage and export at existing capacity. Under these baseline conditions, benefits to estuarine habitat and biological resources experienced from downstream movement of X2, increases in Delta outflow and QWEST, and constraints on export frequently exceed the direct requirements of the 1995 WQCP.

The Bay Institute and other signatories to the December 15, 1994, Principles for Agreement on Bay-Delta Standards were able to reach agreement on a level of protection for the estuary that assumed X2, outflow, export and QWEST impacts based on the existing level of development. The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) subsequently issued findings of no jeopardy for the Delta smelt and winter-run chinook salmon, both listed under the federal Endangered Species Act, that assumed X2, outflow, export and QWEST impacts based on the existing level of development. Approval by the U.S. Environmental Protection Agency (USEPA) of the 1995 WQCP under its Clean Water Act Authority also assumes these baseline conditions, and calls for reevaluation of the 1995 WQCP criteria if baseline conditions change.

The Project should not proceed unless and until the SWRCB and USACE impose new terms and conditions to ensure that water quality benefits are not lost from X2, outflow, export and QWEST values that exceed the 1995 WQCP's direct criteria but which are expected to occur under the 1995 WQCP's baseline conditions. Some preliminary terms and conditions are suggested below.

D12-1 cont'd

D12-3

Delta Wetland Draft EIR/EIS comments December 21, 1995 Page 3

# Project diversions will adversely affect X2 location and Delta outflow and EC levels

Project operations would cause upstream movement of X2 up to 1.4 km during the critical peak spawning and migration period from February through June, and up to 3.5 km from September through November. Correspondingly, Delta outflow would be significantly reduced much of the time, with decreases up to 39 percent of outflow, and associated increases in electrical conductivity (EC) would occur. As discussed above, these effects would constitute significant changes in the baseline conditions assumed in the adoption of the 1995 WQCP, the USEPA approval of that plan, the issuance of the USFWS biological opinion for Delta smelt and of the NMFS biological opinion for winter-run chinook salmon. X2 location (expressed in the 1995 WQCP as Delta outflow) is strongly correlated to the abundance of estuarine organisms at all trophic levels. While the X2 - abundance relationships are linked to a number of important causal factors, including optimal habitat surface area, the Draft EIR/EIS focuses on the surface area aspect alone in its assessment of potential impacts. As a result, the Draft EIR/EIS inadequately analyzes X2-related impacts, and Project-induced alteration of X2 location is rather cavalierly dismissed.

Delta outflows at the 1995 WQCP baseline condition levels during the rest of year, particularly in the November - January period, are also important in transporting juvenile fish downstream from the Delta, cueing migratory behavior, and preventing entrainment at in-Delta diversions and export facilities.

Accordingly, SWRCB and USACE should impose the following prohibitions on the Project:

- o most critically, no movement of X2 upstream as a result of Project operations under any conditions during the critical peak spawning and migration period from February through June.
- o no diversions to Project storage during the February June period.
- o no movement of X2 upstream of Collinsville as a result of Project operations from July through September.
- o no movement of X2 upstream of Chipps Island as a result of Project operations from October through January.

Further terms and conditions governing impacts to X2 location and related concerns should be developed at the request of SWRCB and USACE by the California Department of Fish and Game (CDFG), USFWS, NMFS and USEPA (which was responsible for creation and refinement of the X2 requirement). These terms and conditions should include:

- o constraints on average and maximum movement of X2 as a result of Project operations during the July through January period, given the prohibitions above.
- o development of appropriate compensatory habitat in Suisun Bay and the western Delta to offset residual impacts to estuarine habitat and water quality from upstream movement of X2 as a result of Project operations during the July through January period. (Although the Project proponents commendably propose in Alternatives 1 and 2 to offset loss of

agricultural land with wildlife habitat values on two reservoir islands with operation of two islands for wetland and wildlife habitat, this measure does not compensate for X2/outflow-related impacts to estuarine species. Nor are construction-related impacts to spawning habitat mitigated by the habitat islands, and in-Delta wetland restoration may also be required.)

o constraints on Project diversions and discharges when Sacramento or San Joaquin River flows fall below prescribed, Project-specific threshold levels over and above the baseline 1995 WQCP conditions.

o constraints on diversions to or discharges from Project storage when designated abundance indices for Delta smelt, longfin smelt, Sacramento splittail and other species (which are listed or candidates for listing under the federal or state Endangered Species Acts and whose abundance is related to X2 and outflow values) fall below prescribed threshold levels.

o dedication of a portion or percentage of Project discharge as augmentation flows to meet environmental objectives over and above the base requirements for Delta outflow and other 1995 WQCP criteria, in order to offset reductions in Delta outflow during the July - January period.

These prohibitions, constraints and other measures would not only help prevent overall estuarine habitat degradation from changes in X2 location and Delta outflows, but would also help prevent disruption of outmigration by juveniles of all Sacramento and San Joaquin River chinook salmon runs and of steelhead, and direct entrainment by Project diversions and indirect entrainment by other Delta diversions and export facilities of juvenile salmon and steelhead, and of the eggs, larvae and juveniles of Delta smelt, longfin smelt, striped bass and other Bay-Delta species, as a result of Project diversions.

#### Impacts of Project discharges to export are inadequately addressed

In addition to habitat degradation and disruption of fish migration from Project diversions discussed above, Project discharges for export use will also increase indirect losses of endangered species and other resources by increasing entrainment at the state and federal export facilities, adversely affecting temperature conditions, and through other means.

As discussed above, the 1995 WQCP's export criteria, and the federal agency actions based on adoption of these criteria, assume certain baseline conditions where Delta inflow and export are constrained by existing storage and export capacity. Project discharges for export use, particularly in the winter and spring periods, would significantly reduce QWEST values and increase exposure of eggs, larvae and juveniles of endangered species and other resources to entrainment at the CVP and SWP export facilities. Not including Project discharge as part of the 1995 WQCP Delta inflow/export ratio would further exacerbate these impacts.

In order to prevent these potential impacts, SWRCB and USACE should impose the following terms and conditions on Project discharge:

D12-3 cont'd

o prohibition of Project discharges for export use from January through June.

o during periods of Project discharge for export use, dedication of a portion or percentage of Project yield as Delta outflow augmentation flows over and above existing regulatory requirements in order to improve environmental conditions for transport of aquatic organisms to suitable downstream habitat areas; amount and use of dedication to be determined by CDFG, USFWS, and NMFS.

# Project discharges to Delta outflow may not provide anticipated benefits

The Draft EIR/EIS states that water supplies developed by the Project may be used to help achieve Delta outflow requirements or other environmental flow objectives. The Delta outflow requirements of the 1995 WQCP are based on the strong correlations between X2 location (expressed in the WQCP as outflow) and the abundance of estuarine organisms at all trophic levels. The X2 - abundance relationships are believed to be linked to a number of factors, including the occurrence of low-salinity shallow-water habitat; the contribution of riverine loading to the estuary's organic carbon budget; the Delta outflow-induced transport of eggs, larvae and juveniles of estuarine species to more productive habitat areas downstream; and the movement of anadramous fish in response to changes in flow throughout the watershed. Discharges from Project storage to meet Delta outflow requirements would not replicate all the complex processes occurring throughout the watershed that contribute to the X2 - abundance correlations and could therefore invalidate some of the benefits of the X2 - abundance relationship which otherwise would be expected. Compliance with the Delta outflow requirements under these conditions may consequently fail to fully protect estuarine habitat and other beneficial uses. SWRCB and USACE should prohibit the use of discharges from Project storage to replace releases from storage facilities in the upper watershed in order to help achieve Delta outflow requirements except under "supercritical" conditions (i.e., conditions resembling those of the 1976-77 drought) where upstream storage is not sufficient to achieve such objectives. Project discharges for augmentation flows to improve habitat conditions over and above upstream releases necessary to achieve base Delta outflow requirements would not be precluded by such a prohibition.

#### Recreation facilities

Recreation facilities should not be included in any Project alternative. Construction of these facilities is not required to meet any of the stated Project purposes (Delta export demands, Delta water quality needs, environmental flow requirements). More importantly, the size and extent of facilities called for in the Draft EIR/EIS represents an extremely significant increase in the occurence of marinas, hotels, and parking lots in the Delta region, and an associated increase in boat and automobile traffic and other disturbances. This component of the Project is non-essential and should be eliminated to avoid its adverse local and cumulative impacts to water quality, aquatic, wetland and wildlife habitat, and other beneficial uses of the Delta.

D12-4 cont'd

D12-5

#### No-Project alternative

The Draft EIR/EIS describes the No Project Alternative as intensive agricultural operations on the four Project islands. This description overlooks other potential No Project Alternatives, including: purchase of one or more islands by federal, state and local agencies (using Catégory III or CVPIA Restoration Fund monies, for instance) for restoration of aquatic habitat and/or management of wetland and wildlife habitat; cooperative arrangements between Project proponents and federal, state and local agencies to restore one or more islands as aquatic habitat or manage one or more islands as wetland and wildlife habitat; agricultural operations on portions of one or more of the islands with adequate screening of agricultural diversions (co-funded by Category III, for instance) and other measures to reduce impacts of agricultural operations. Restricting the No-Project Alternative to intensive agricultural operation on all four islands using unscreened diversions appears to be a heavyhanded attempt to blackmail the lead state and federal agencies into approving one of the proposed alternatives.

Based on the degree of potential impact to beneficial uses from those aspects of Project operation discussed above, we urge SWRCB and USACE to withhold certification of the Draft EIR/EIS and issuance of permits. Please contact me at (415) 721-7680 if there are any questions regarding these comments.

Sincerely

Gary Bobker Policy Analyst

cc: interested parties

## The Bay Institute of San Francisco

D12-1. Since this comment letter was submitted, the lead agencies have concluded formal consultation with DFG, NMFS, and USFWS on the effects of the Delta Wetlands Project on listed fish species. As part of the consultation process for compliance with the federal and California ESAs, USACE, the SWRCB, NMFS, USFWS, DFG, and Delta Wetlands agreed on the project operating parameters referred to as the FOC, which have been incorporated into the proposed project. DFG subsequently issued a no-jeopardy biological opinion regarding project effects on delta smelt and winter-run chinook salmon; NMFS issued no-jeopardy biological opinions regarding project effects on winter-run chinook salmon, Central Valley steelhead ESU, and Central Valley spring-run chinook salmon ESU and their habitats; and USFWS issued no-jeopardy biological opinions regarding project effects on delta smelt and splittail and their habitats. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for details about the formal consultation and discussion of the terms of the biological opinions.

See Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, Including the CALFED Bay-Delta Program", regarding substitution of Delta Wetlands discharges for releases from upstream reservoirs.

**D12-2.** The impact analyses in the 1995 DEIR/EIS concluded that the project could result in several significant effects on water quality and fisheries; mitigation measures were recommended to reduce impacts to a less-than-significant level.

The FOC terms, developed through the federal and California ESA consultation process, place parameters on Delta Wetlands Project operations to ensure that the project would not compromise the protection measures included in the 1995 WQCP and the Water Accord. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

- **D12-3.** DFG, NMFS, and USFWS addressed concerns about optimal salinity habitat and project effects on X2 by including in the FOC several terms that directly limit the change in the location of X2 that Delta Wetlands diversions would be allowed to cause. These terms are detailed in response to Comment A7-3. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for a summary of all terms included in the FOC and biological opinion RPMs. The operating parameters and compensation provided by these measures, in addition to constraints on changes in X2, include, but are not limited to:
  - # requiring that Delta Wetlands conserve in perpetuity 200 acres of shallow-water rearing and spawning habitat as compensation for potential project effects on habitat;
  - # replacing aquatic habitat lost as a result of construction activities at a 3:1 ratio;

- # prohibiting diversions in April and May and limiting diversions to a percentage of outflow, surplus flow, and San Joaquin River inflow in other months;
- # specifying periods of delay for the beginning of diversions and reductions in Delta Wetlands operations when the FMWT index is less than 239, and requiring that diversions and discharges be reduced if protected fish are observed in the required daily fish monitoring;
- # limiting discharges for export from Bacon Island to 50% of San Joaquin River inflow in April through June and prohibiting discharges for export from Webb Tract in January through June; and
- # requiring that Delta Wetlands set aside a percentage of discharges in February through June as "environmental water".
- **D12-4.** Delta Wetlands discharge to export would not affect QWEST because both the discharge points (Webb Tract and Bacon Island) and the SWP and CVP export facilities are east of the channels included in the calculation of QWEST. See response to Comment D12-3.
- **D12-5.** If Delta Wetlands were to discharge to outflow as a substitute for controlled releases from upstream reservoirs, Delta Wetlands Project operations would have to be integrated with SWP and CVP operations. No proposals for which the lead agencies could reasonably assess the environmental effects have been made to coordinate Delta Wetlands Project operations with, or integrate them into, upstream water facility operations. See Master Response 1, "Project Objectives: Analyzing Effects of Water Transfers, Banking, and Augmenting Outflow", and Master Response 2, "Integration of the Delta Wetlands Project with Federal and State Water Project Operations, including the CALFED Bay-Delta Program".
- **D12-6.** The recreation facilities are part of the overall project purpose as defined by the applicant. See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities", for a discussion of project impacts associated with recreational uses.
- D12-7. The No-Project Alternative is based on the assumption that intensified agricultural conditions represent the most realistic scenario for the Delta Wetlands Project islands if permit applications are denied. The lead agencies developed the description of the No-Project Alternative based on the stipulation that no discretionary actions, as defined by NEPA and CEQA, would be needed. The commenter's suggested alternatives are actions that would require discretionary permits and therefore do not meet the definition of the No-Project Alternative. The Delta Wetlands Project alternatives (Alternatives 1, 2, and 3) were selected to represent a range of project operations that meet the project purpose and need for purposes of determining environmental impacts. The alternatives suggested by the commenter do not meet the purpose of the proposed project and would not be implemented by the project applicant if permit applications are denied. See also response to Comment C2-5.



# Marin Audubon Society Box 599 Mill Valley, California 94942-0599

December 21, 1995

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Sacramento, CA 95812-2000

RE: COMMENTS ON DEIS/R FOR DELTA WETLANDS PROJECT

Dear Mr. Sutton and Mr. Monroe:

The Marin Audubon Society appreciates the opportunity to comment on the DEIS/R for the above project. Before getting into our comments, we would like to request that the comment period be extended to allow for distribution and review of proposed changes that may result in the project with regard to fish impacts as a result of consultation between DW and federal and state agencies.

The EIS/R is inadequate in many ways. It does not adequately identify adverse impacts of the DW project, fails to adequately analyze many adverse impacts that are identified, and fails to develop and discuss adequate mitigation measures to offset or compensate for project losses. The severity of a number of habitat impacts is understated. Many mitigation impacts and mitigation measures dependent on future study which removes these issues from public review and from decision-makers during their decision-making process. Providing information is one of the main purposes of CEQA and NEPA. Further, the EIS/R fails to adequately address the cumulative impacts of the project. By and large, it focuses on localized individual impacts while cumulative analyses are cursory and inadequate.

The EIS/R gives the impression that there really won't be more water diverted because the water will only be diverted when there is a "surplus." Well, the so-called "surplus" is a man-created delineation based on water rights decisions for the estuary. Water rights decisions may or may not provide the answer to

D13-2

D13-1

D13-3



restoring a healthy estuary. They are political and legal decisions based, to some extent, on biological information which is clearly inadequate. Much is still to be learned about fresh water needs of many species, and downstream resources at Suisun Marsh, San Pablo and San Francisco Bay. Nor are the issues of needs of these downstream resources, and of the impact of continued removal of high flows from the estuary, addressed.

It is well recognized that the San Francisco Bay and Delta Estuary is in a dramatic state of decline with increasing number of species becoming endangered, and considerable debate and legal action going on for many years. Yet the Background information (page S-1) does not even mention this critical information. Instead, the EIS/R takes the approach that all is well, that this project will result in no additional water loss to the resources because water will only be diverted when there is a "surplus." The term "surplus" does not reflect that the water is not needed by the estuary resources. In fact, the diversion of only surplus water is still a loss to the estuary resources because the water that will be diverted by DW would be new rights, i.e. water not diverted now.

The EIS/R focuses on mitigations that provide physical habitats (wetlands, ponds etc.). While even these have some problems, no wetlands compensate for the loss of fresh water. The failure to discuss and analyze possible reduce project alternative or mitigation that would require discharge of DW diverted water when it is needed to benefit the estuary and its fish and wildlife species is a major flaw.

Our questions and comments on specific sections of the DEIS/R are:

#### SUMMARY

Page S-1 The purpose of the DW project is identified as "to divert surplus water..." The notion of surplus waster is associated with CA water rights. All water passing through the estuary is useful and needed to support fish and other aquatic resources dependent on the estuary. Therefore, no water can really be considered surplus.

## CHAPTER 2 PROJECT DESCRIPTION

#### Page 2-13

Discuss the implications and the potential impacts of allowing DW to appropriate seepage and return flow from cover crop irrigation. What constituents would be carried by the irrigation return flows? How could these impact fish and other aquatic resources.

# CHAPTER 3D FLOOD CONTROL

D13-3 cont'd

D13-4

D13-5

## Page 3D-10

Why would wells installed near the toes of existing levees limit or eliminate seepage? How would these wells impact existing habitats? Would they increase the potential for erosion? Where have they been used successfully?

D13-6

#### Page 3D-11

Isn't less pervious material be more suitable for levee construction than sand? Evaluate the potential for using material dredged from San Francisco Bay or the elsewhere in the Delta? What are the impacts of the previous uses of dredge material to stabilize Delta levees?

D13-7

# Page 3D-15

Impact/Mitigation D-3 calls for riprap on interior levee slopes of reservoir islands to prevent erosion. Is erosion also a potential problem on the interior slopes of habitat islands? What measures would be taken to control erosion on the habitat islands? What habitat impacts could result from these erosion control measures?

**D13-8** 

#### CHAPTER 3F FISHERY RESOURCES

## Page 3F-1

Significant potential impacts to reproductive success of Delta Smelt, Sacramento splittail and other Delta species would not be just localized. The local impacts would contribute to <u>cumulative</u> adverse impacts on these species.

D13-9

#### Page 3F-2

All native fish species that use the Delta would potentially be adversely impacted by diversion of water for the project. Discuss the potential effects of the water diversions proposed by the project when considered cumulatively with other diversions on the flowing native species that are in decline: Starry flounder, yellowfin goby, Pacific lamprey, white sturgeon, Tule perch?

D13-10

#### Page 3-F 4

Why is the dramatic decline in fresh water flows not mentioned as a factor associated with the decline in salmon? Is it not true that the decline in populations of most of not all native fish species is directly related to the amount of fresh water flows?

D13-11

#### Page 3F-14, 15

The statement is made that the proposed location of the facilities is not in what is believed to be preferred spawning or rearing habitat for Delta smelt or Sacramento splittail. Is the project in spawning or rearing habitat of any native fish species?

D13-12

What kind of habitat would be required for the restoration requirements in Mitigation F-1?

How would the water diversions of the project, when considered together with existing diversions, affect the location of the entrapment zone?

D13-13 cont'd

#### Page 3F-17

Impacts from accidental spills from recreational boat use are described as being random and concentrated in specific locations, and therefore as having localized impacts that are less-than-significant. To the contrary, toxic spills could very well have a significant impact on local populations and a significant cumulative impact.

D13-14

Also, what impact could sewage and gray water have on fish populations locally and cumulatively? What measures could reduce impacts of toxic spills from recreational boats in marinas? Evaluate the use of restrictive management of marinas and requirements to have pump out facilities and bathrooms on-shore.

D13-15

## Page 3F-22

How realistic is the assumption that 50% of Delta smelt spawn east of the Sacramento River and 50% on the west side?

D13-16

## Page 3F-23

How much total shallow water habitat suitable for spawning and rearing of splittail, smelt and other native fish, would be converted to deeper water habitat by the project? Where would the habitat be located? Discuss the usefulness for native fish of the habitat that would be created? Would the habitat be on the inside or managed sides of the habitat islands? Would this limit its usefulness to native fish?

D13-17

That entrainment would affect "only local populations" does not recognize that impacts of this and many other diversions would add up to be cumulatively significant. The loss of many local populations is not a less than significant impact, particularly when that species is in decline is an inaccurate statement.

D13-18

#### Page 3F-24

Mitigation Measure F-3 would "minimize" changes in cross-Delta flow conditions. The goal should be to avoid changes that would adversely impact endangered and special status species. What measures were investigated that would avoid cross-Delta flows?

D13-19

# Page 3F-25 - 26

Mitigation F-4 As addressed above, the goal should be to avoid entrainment loss of Delta smelt and longfin smelt larvae. What measures have been evaluated that could avoid entrainment loss of these special status species?

D13-20

Impact F-6 (page 3F-26) This analysis states that diversion of water for the project could cause a shift of X2 upstream but that

this is less-than-significant because habitat changes would be small, diversions infrequent, salinity degradation would be of short duration, and optimal salinity habitat April through August would slightly increase due to changes in agricultural diversions. The reasons given for the determination of less-than-significant impact are uncertain, subject to change, fail to consider cumulative impacts of existing diversions and minimizes the significance of existing impacts on the location of X2 from current diversions. Therefore, this analysis understates the significance of the impact and is faulty and inaccurate.

D13-21 cont'd

To provide for more adequate mitigation of impacts to the location of the entrapment zone, we recommend that the EIS/R evaluate the release of water from the project as an alternative mitigation. Evaluate an alternative mitigation that would require releases of project water to ensure the entrapment zone is maintained at Suisun and to provide other environmental benefits needed to protect the estuary.

D13-22

## Page 3F-27

Mitigation Measure F-5 indicates that DW intakes would include "effective" fish screens that would not directly entrain juvenile smelt. There is no information provided about how effective fish screens are these days. Have there been advances in recent Years? What size fish are excluded? Are larvae still caught in the mesh?

D13-23

What is meant by habitat restoration as an example of an alternative action to mitigate unavoidable DW project impacts? Does this mean restoring more wetlands or providing increased flows for fish and wildlife? How much additional area is available to increase wetlands restoration? Aren't all of the islands identified for some mitigation or restoration already? What other alternative actions are possible to mitigate deficiencies in the management plan that do not provide adequate mitigation?

D13-24

Discuss whether the trapping of fish in the reservoirs is a potential impact of the project?

D13-25

#### Page 3F-35

A major element of habitat for fish is fresh water. No matter how much shallow spawning and rearing habitats are available, most species native to this part of the estuary are dependent on adequate amounts of fresh water for spawning and rearing, and for movement out of the estuary. What is meant by "habitat" as it is used in the cumulative Impacts discussion?

D13-26

There is no evidence presented that "total Delta habitat would likely increase under existing and future Delta programs" nor is it clear what such an increase would involve. Does habitat increase mean increase in a particular type of wetlands or

increase in flows, or both. Also, the goal might be to achieve a habitat increase, but this may not necessarily be the end result.

D13-27 cont'd

Impact F-17 states that the amount of habitat affected by construction and maintenance activities under cumulative conditions would be small relative to the total amount of similar habitat in the Delta. How can this assessment be made considering that many of the levee banks are riprapped and no longer vegetated with riparian vegetation? Although the amount of existing habitat may sound large, it pales in comparison with historic (pre-diversion south) conditions. Therefore, the comparison is with a degraded and stressed habitat. The habitats impacted may seem small but would contribute to the cumulative significance of the losses. In addition, there is no evidence that the kind of habitat that would be created is the habitat type needed by the native special status species.

D13-28

Relying on future unspecified measures that "would likely increase" Delta habitat other programs, including the CALFED agreements, Category III measures, and actions from the Anadromous fish program, does not satisfy CEQA. Measures to mitigate project individual and cumulative should be assured by each project, including DW.

D13-29

#### <u>Page 3F-36</u>

The discussion of cumulative impacts under Potential Flow and General Habitat Effects is focused on impacts to the project than the resources. "Under future conditions, surplus flows are likely to be less available than under existing conditions." "The major difference is that under cumulative conditions, less water would be available for DW to divert." What does this mean to fishery resources? If there is less water for DW to divert but DW diverts what is perceived by the SWRCB to be surplus, that means there is less water in the system, and therefore, less water for the fish. The diversions would still have an impact on estuarine dependent species. If other water rights holders have acted on their allotment and/or it is a low rainfall years, it is still the fish that suffer.

D13-30

The effect would not be the same for fish and other aquatic resources, as stated in paragraph two (page 3F-37). This would mean less water flowing through the estuary and less water for fish. What would this mean for the Delta Smelt, splittails and other native fish species?

D13-31

What are the potential cumulative impacts on fish and wildlife resources downstream in Suisun Marsh and San Francisco Bay? What impacts could reasonably be anticipated with the cumulative water loss to wetlands of Suisun Bay, San Pablo Bay and the South Bay? What is the potential for the water diversions, when considered cumulatively with other diversions, to affect a change in the vegetation pattern in the Delta? What is the potential for the

diversions when considered cumulatively with other diversions to affect a change in the vegetative pattern of the Suisun Marshes and San Pablo Bay marshes?

D13-31 cont'd

What if it is later identified that higher levels of fresh water discharge is needed to benefit those habitats and the species that depend on them?

D13-32

Evaluate an alternative mitigation under which DW would be required to release fresh water to mitigate flow and general habitat impacts to native fish, plants and other estuarine dependent species.

## Page 3F-37

Why is restoration of fish habitat uncertain (see mitigation Measure F-1) while habitat restoration of wetland habitat is not?

D13-33

The Mitigation Measures under Potential Species-Specific Effects all refer to Mitigation Measures for individual, localized impacts. This is not adequate. Cumulative adverse impacts on species must also be addressed. Further, the discussion minimizes the potential impacts of cumulative loss of fresh water on fish. wildlife and wetlands. Cumulative impacts cannot help but be more severe because of the already degraded state of the Estuary and pre-existing and proposed diversions.

D13-34

Evaluate the need and potential for water diversions to DW to be reduced to mitigate cumulative impacts of water loss for specific species?

CHAPTER 3G VEGETATION AND WETLANDS

The last paragraph states "The portions of the four DW project islands included in Alternatives 1 and 2 encompass 20,128 acres.... How many acreage of each habitat type is included in this acreage figure? This figure is not given for all habitat types.

D13-35

Page 3G-12

Are any special status plant species located on the sites where construction would occur? If so, how would these losses be mitigated? Address moving the facilities as a possible mitigation.

D13-36

Developing a Mitigation Plan is suggested as mitigation for loss of special status species. Developing a Plan is not adequate in itself as a mitigation. The Plan must be satisfactorily implemented, monitored and the correction of deficiencies assured.

D13-37

Would any special status plant species be lost through

#### inundation?

D13-37 cont'd

#### Page 3G-13

How old is the 203-acre riparian woodland noted in Impact G-5 that is jurisdictional wetland? How long would it take to replace the values and functions provided by this mature habitat? How is this time difference accounted for in the identified mitigation acreage? What amount of additional acreage would be provided to adequately compensate for the loss acreage and the time lag for the new habitat to mature?

D13-38

Mitigation Measure G-4 calls for implementing an off-site plan for mitigating impacts to jurisdictional wetlands. Why can't these wetlands be mitigated on-site, which is far preferable? The discussion should demonstrate why on-site mitigation is not possible. If on-site mitigation is not possible, reducing or revising the design of the project to avoid disturbance to some or all of the existing wetlands should be evaluated.

D13-39

It has not been demonstrated (Impact G-6) that Measures G-1, 2, and 3 would reduce impact G-6 to a less-than-significant level.

D13-40

#### Page 3G-15

Impact G-7 states that implementation of Alternative 1 in conjunction with implementation of other Delta projects (Interim South Delta Program, Interim North Delta Program, Sherman Island Widlfie Management Program, etc.) would increase the acreage of permanent and seasonal wtlands. This project cannot take credit for measures implemented by other entities, nor is it known whether the other restorations would be implemented or be successful.

D13-41

Peak flows serve important functions for fish and the estuarine systems. Discuss potential impacts of further reduction in peak flows through the estuary due to increased diversions?

D13-42

# CHAPTER 3H WILDLIFE

<u>Page 3H-12</u> The Criteria for Determining Impact Significance should be revised to include "disruption to the movement of wildlife" as is identified in CEQA Guidelines.

D13-43

The statement is made near the end of the second column that Tables 3H-2 and 3H-3 present the frequency with which each of the five conditions would be expected to occur on the reservoir islands. Actually a footnote on these Tables states a significant uncertainty about the duration and viability of habitats: "Frequencies (shown on tables) were estimated based on the 70-year hydrologic record for the Delta. The frequency with which each flood condition class would occur in future years, however, is unpredictable. Frequencies do not include years when reservoir islands may be used for water transfers or banking...."

This uncertainty renders any habitat mitigation value virtually meaningless because there is no measure of dependability that the habitats would be available when wildlife need them. Therefore, habitats created on these islands should not be cited or credited for any habitat mitigation.

D13-44 cont'd

As pointed out in the discussion, nesting of terms, waterfowl and other species could be destroyed by diversions and discharges from the DW project. This should be considered an adverse impact. Destruction of established nests of migratory waterfowl and other migratory birds is particularly troubling because DW would create conditions favorable for nesting which would encourage birds to not migrate but to stay and nest here. Once drained birds there would likely be insufficient time or habitat available to attempt to nest again. Therefore, DW would be contributing to reduced production of the Pacific Flyway populations of these species. This should be considered a significant impact. What measures could mitigate this impact?

D13-45

#### Page 3H-16 to 18

Neotropical songbirds are in decline worldwide and impact on them should be addressed. What neotropical songbirds use the four islands and, therefore, could be impacted by the project?

D13-46

#### Page 3H-19

The first paragraph second column states that the primary goals of the HMP are to describe the habitat island habitat and management requirements necessary to offset impacts of reservoir island operations on state listed threatened species, wintering waterfowl habitat and jurisdictional wetlands. This is inadequate to mitigate potential impacts of the project. Migratory birds are protected under Migratory Bird Treaty Acts. Neotropical songbirds are in a state of decline worldwide. Impacts on migratory songbirds that may be using the site, on migratory waterfowl and shorebirds and on resident species should also be addressed and mitigated.

D13-47

#### Page 3H-22

The discussion of Impact H-3 Loss of Foraging Habitats for Wintering Waterfowl indicates that high quality foraging habitats would be created on the habitat islands, therefore, this impact is less than significant and no mitigation is required. We strongly disagree. While the habitat itself may be high quality, the birds use of the habitats would be limited and precarious because they would be subject to extensive disturbance from hunting, aircraft using the airport and other recreational uses, that their value would be substantially reduced.

D13-48

Therefore, habitats with these impacts cannot be considered high quality and, therefore, mitigation for these impacts should be addressed. Moving the runway to the hunting zone should be considered as a mitigation to reduce habitat impacts to a less

than significant level. Creating additional wetland habitats that do not have hunting or aircraft disturbances and reducing the area available for hunting should be evaluated as mitigation measures.

D13-48 cont'd

Impact H-3 Credit is also taken for habitat created on the reservoir islands. Because of the uncertainty in time and quality of these habitats, as discussed elsewhere, no credit should ben taken for any habitats on the reservoir islands.

D13-49

With regard to the reference to establishing duck nesting habitat in Impact H-4, how much duck nesting habitat, if any, would be counted on the reservoir islands? On what islands would the sandhill crane habitat (Impact H-6) be created?

D13-50

How much suitable habitat would be lost for neotropical songbirds and other native upland birds? How much suitable habitat would be created for neotropical songbirds?

D13-51

# Page 3H-23

Impact H-7 explains that roosting habitat would be provided for sandhill crane. Would the foraging and roosting habitats would be situated close together as the cranes prefer, or would they have to travel some distance?

D13-52

How long would it take for trees to grow large enough to provide perching and nesting sites for Swainson's hawk?

D13-53

# Page 3H-24

The construction mitigation plan should include a component that limits construction to non-nesting seasons.

D13-54

Mitigation for impacts of aircraft flights on sandhill crane should consider relocating the airport runway to a location away from the sandhill cranes. Avoidance of the impact should be considered prior to the Measures noted in Measure 3H-16 that would be less certain effectiveness.

#### Page 3H-26

The discussion of Impact H-17 states that waterfowl would be widely distributed because hunting would periodically disturb the birds. Wouldn't disturbance due to hunting tend to result in the birds concentrating in smaller areas to avoid the hunting zone?

D13-55

How would the hunting restrictions be required and enforced?

D13-56

Consumptive recreational uses are provided for, however, no opportunity for passive non-consumptive recreational uses are provided. This impact should be mitigated by establishing areas where birders and walkers could use and be safely away from hunters and not disturb the birds.

Recreational facilities are strung out along the entire boundary of each island. This would mean that no edge would provide safe, undisturbed habitat for wildlife. This should be identified as a significant impact because it would reduce the value of both the habitat and reservoir island habitats, and render them less usable by wildlife. Effective and suitable mitigation habitat does not have disturbances from aircraft, various "recreational" uses such as hunting and boating, as well as potential drain the habitats during nesting season. What measures would mitigate the impacts on wildlife of the various human uses proposed by the project? Measures such as reducing the number of recreation uses and facilities, or bringing them closer together so that large sections of edge habitat are undisturbed should be among those assessed.

D13-58

# <u>Page 3H-27</u>

Regarding Impact H-20, no evidence is presented that there would be an increased duck production on the habitat islands sufficient to offset duck harvest from hunting? What amount of production would be need to offset hunting losses? How many ducks are anticipated to be shot? Evaluate the cumulative significance of increased harvest on the statewide waterfowl population.

D13-59

Impact H-22 There is no evidence presented that compliance with existing water quality objectives and other requirements would ensure there would not be salinity changes that would be detrimental to wildlife. The entire estuary is in a state of decline. The water quality objectives are not necessarily based on biological knowledge but in large part on political pressure.

D13-60

# Page 3h-27

How would reduced flows to Suisun marsh and San Francisco Bay impact waterfowl, neotropical migrants and other non-game species that depend on those habitats?

D13-61

# Additional Questions from HMP

The discussion on EMP page 10 states that vegetation may be removed periodically from channels etc. for maintenance of water management functions. This could substantially reduce the habitat values of these areas. How many acres of what kind of habitat would this involve? Has this been credited for mitigation for loss of a certain habitat type?

D13-62

# Comments on: <u>DRAFT HABITAT MANAGEMENT PLAN FOR THE DELTA</u> <u>WETLANDS HABITAT ISLANDS</u>

<u>Page 2</u> Species Goals Impacts to all migratory species, not just waterfowl, should be mitigated.

Why is so much of the mitigation acreage for the Swainson Hawk concentrated on the reservoir islands? Would any of it be covered with water for part of the year? How would water coverage effect its value?

D13-63 cont'd

<u>Page 3</u> Compensation Requirements The first paragraph should be rewritten to clarify. The discussion appears to indicate that jurisdictional wetlands are artificial wetlands. The discussion also seems to indicate that open water, grain and seed crops, grasslands and unvegetated disturbed areas are also in the jurisdictional wetland category.

D13-64

<u>Page 4</u> Why are the compensation requirements for waterfowl foraging habitat not at least equal to the amount of existing nabitat? Existing is 10,514 acres and only 8,220 would be required to be replaced?

D13-65

Page 5 Explain how roost sites that would be created would be located close to foraging sites to ensure maximum habitat? Although the discussion indicate that cranes prefer roost and foraging sites nearby, it is not clear that the project would accomplish this.

D13-66

Page 6 Would nesting boxes or platforms would be located on reservoir islands? Although July 15 is used as a rule of thumb for the end of nesting season, nesting for some species can extend beyond that date. Therefore, draw down occurs on July 15, nests could be destroyed. Project conditions should require that draw-down be delayed until nestlings fledged.

D13-67

Recreation Consumptive recreational uses are well provided for, however, how are recreational interests that are not provided. This deficiency should be mitigated by establishing areas where non-consumptive users such as birders, walkers etc. could observe wildlife while not disturbing them and also be safe from hunters.

D13-68

Page 11 Why are the Lake Islands proposed to be so small?

D13-69

The authority of the HMAC is defined as to make recommendations to DFG and DW. Therefore, although they should be a part of the discussions, neither of these entities should be members of the Committee. Committee members should be chosen and charged to clearly represent the interest of a particular species or group of species in order to avoid needs of some species being neglected. For example, a particular representative should be appointed to represent waterfowl another migratory songbirds, another raptors etc.

D13-70

<u>Page 17</u> The discussion references Table 25 which shows performance goals to identify the need for management changes. Standards are also necessary to evaluate the success of failure of aspects of the project. However, these tables show no

performance standards identifying target numbers of birds expected to use the different habitat for forage, roost and to nest. To evaluate the success of the project, target populations should be established for each species and for each habitat type being created for mitigation on the habitat islands. Target numbers should be identified for each life cycle function. Nesting success should be measured in the number of live young produced for each species

D13-71 cont'd

Page 20 Long-Term Maintenance of Emergent Marshes indicates that although dense stands of emergent vegetation may reduce habitat value for waterfowl, it increases habitat for other species such as Marsh Wren, Swamp Sparrow and Yellowthroat. What species would be displaced with this management? How can it be assured that some habitat will remain for these species?

D13-72

Who will responsible for enforcement or provisions of project approvals?

D13-73

Page 21 As stated above, we recommend that the airstrip be located within the hunting zone in order to avoid impacts to better ensure compliance with the mitigation for project. Since little or no hunting takes place on these islands, hunting will be an entirely new impact, in addition to primary impacts of the project, therefore, wildlife using the non-hunting areas should not be subject to disturbance simply to support another use that has degrades habitat values if only by reducing the time wildlife can use it. Airstrip simply extends the impacts of the project by extending areas of disturbance to wildlife.

D13-74

Thank you for considering our comments.

Singerely

Barbara Salzman, Chair Conservation Committee

## **Marin Audubon Society**

- **D13-1.** The SWRCB and USACE extended the comment period by 30 days (to December 21, 1996) in response to this and other requests. Results of formal consultation under the federal and state ESAs for the Delta Wetlands Project were presented in the 2000 REIR/EIS.
- **D13-2.** The 1995 DEIR/EIS includes a detailed discussion of the impacts associated with the proposed Delta Wetlands Project and identifies mitigation to avoid or minimize those impacts. Each resource chapter also addresses the cumulative impacts of the Delta Wetlands Project when considered in combination with the impacts of other current and reasonably foreseeable future projects. The mitigation measures presented in the 1995 DEIR/EIS are of sufficient detail to, at a minimum, describe to reviewers the steps necessary to reduce the impacts to less-than-significant levels. Additional detail regarding mitigation and monitoring of listed fish species was developed as part of the ESA consultation process and was included in Chapter 5 of the 2000 REIR/EIS. See Chapter 3F in Volume 1 of this FEIS.

See the responses to more specific comments (D13-4 through D13-74) below.

- D13-3. The 1995 DEIR/EIS recognizes the delicacy of the Bay-Delta environment and identifies the effects the project would have on biological resources in the Delta (see Chapters 3F, 3G, and 3H). Certain assumptions were made in the 1995 DEIR/EIS about the adequacy of the 1995 WQCP for protection and recovery of fishery resources; however, it is not within the scope of the NEPA and CEQA analysis to address whether USFWS, NMFS, and other federal and state agencies set the 1995 WQCP and other Delta regulations at a level that would only protect the recovery of fishery resources with an undetermined amount of "surplus flows". The biological opinions for the Delta Wetlands Project issued by USFWS, NMFS, and DFG in 1997 and 1998 place numerous additional restrictions on project operations to ensure that Delta flows and water quality remain at levels that would be protective of aquatic resources. See also response to Comment A4-7.
- **D13-4.** The term "surplus water", or "surplus flows", is used to refer to flows that are in excess of those required to satisfy the outflow objectives of the 1995 WQCP. It is beyond the scope of the NEPA and CEQA analysis to address whether the objectives of the 1995 WQCP are adequate.
- **D13-5.** The commenter is referring to the description of proposed uses of water on the habitat islands that appears on page 2-13 of the 1995 DEIR/EIS (page 2-15 of FEIS Volume 1). Diversions and discharges of water to and from the habitat islands would not differ substantially from existing agricultural practices, and diversions to the habitat islands would be performed under Delta Wetlands' existing riparian and appropriative water rights. Therefore, the contribution of water quality constituents from these islands would not change appreciably under project implementation. Additionally, the FOC terms prohibit Delta Wetlands from discharging water—from the habitat islands for export;

therefore, the description of these potential project operations on page 2-13 of the 1995 DEIR/EIS is no longer valid.

- **D13-6.** The commenter is referring to the description of relief wells on page 3D-10 of the 1995 DEIR/EIS (page 3D-11 of Volume 1 of this FEIS). Relief wells are a common solution for controlling seepage at toes of dams and levees. See response to Comment C15-7. Installation of relief wells would be unlikely to affect existing habitats. If relief wells were used, they would be installed at the toe of the interior of the levees; most of these areas are currently in agricultural use. Operation of relief wells would not increase the potential for erosion.
- **D13-7.** As described in the 1995 DEIR/EIS, material suitable for levee improvements would be obtained from the interior of the Delta Wetlands Project islands. See Appendix H of the 2000 REIR/EIS for more information on the geotechnical investigations conducted for the Delta Wetlands Project. The bulk of the levee improvements for the project islands are at the toe berm or interior surface of the levee where free-draining sandy soils function well and are appropriate material. A less permeable material likely would be used to raise the tops of the levees. As described in the 2000 REIR/EIS, the materials used for levee improvements would be subject to final design and would depend on site-specific conditions.

The commenter suggests investigating the use of dredged material for levee improvements on the Delta Wetlands Project islands. The benefits and impacts associated with using dredged material for levee improvements are hotly debated. Most debates center around the potential effects on water quality of using material from San Francisco Bay, where substantial amounts of salt and various contaminants are deposited annually. Because the cost of transporting dredged materials to the Delta Wetlands islands would be high and the potential adverse effects of using such material is not known, the Delta Wetlands Project would not use dredged materials for levee improvements.

- **D13-8.** Establishment and maintenance of habitat on Bouldin Island and Holland Tract would not erode those perimeter levees. Erosion on the interior of the reservoir island levees would be caused by wind and wave action from the stored water. Because the habitat islands would not store substantial amounts of water adjacent to the levees, erosion conditions on the interiors of the habitat island levees would not differ from existing conditions. Routine levee maintenance activities on the habitat islands would be similar to existing measures. See page 2-11 of the 1995 DEIR/EIS (page 2-12 of FEIS Volume 1).
- **D13-9.** The commenter is referring to the list of potential project impacts in the summary of Chapter 3F. The impact discussion later in the chapter explains the basis of the impact conclusions summarized in this section and describes cumulative impacts. The impact analysis in the 1995 DEIR/EIS identified alteration of spawning and rearing habitat not only as a direct, localized impact (Impact F-1), but also as a cumulative impact (Impact F-17, "Alteration of Habitat under Cumulative Conditions"). Alteration of habitat under

future cumulative conditions was considered a less-than-significant impact for three reasons:

- # the amount of affected habitat would be small relative to the total amount of similar habitat in the Delta,
- # the effects would generally be temporary, and
- # total Delta habitat is likely to increase under existing and future Delta programs.
- **D13-10.** The 1995 DEIR/EIS analysis specifically evaluated fish species whose habitat requirements and distribution are representative of the fish community found in the Bay-Delta; evaluating how these species would respond to the Delta Wetlands Project makes it possible to determine the range of potential impacts on all Delta fish resources. Available information indicates that the habitat conditions included in the evaluation encompass the needs of starry flounder, yellowfin goby (an introduced species), Pacific lamprey, white sturgeon, and tule perch; therefore, additional species-specific evaluation is not necessary.
- **D13-11.** The relationship between the decline in the abundance of the fish population and reduced freshwater flows is not direct. The relationship is complicated by natural variability in flows within and between years. Flows during any particular month can be several times greater or less than flows during other months or years. In addition, although the annual flow volume may not differ substantially from the unimpaired flow volume, reservoir operations and changes in runoff patterns caused by urbanization or agricultural practices may have shifted the monthly timing. Loss of or changes to structural habitat, volume of flows or diversions, and other factors contribute to conditions that have resulted in the decline of many fish species in the Sacramento-San Joaquin basin. Flows affect the decline of fish populations, but a greater flow does not necessarily result in more fish in all years.
- **D13-12.** The predominant type of fish habitat that surrounds the project islands and could be affected by construction activities is steep riprap levee slopes that border relatively deep channels. Available information does not indicate that the riprapped levee slopes are optimal spawning and rearing habitat for any native species.
- D13-13. Mitigation Measure F-1 has been replaced by several FOC terms and RPMs described in the DFG, NMFS, and USFWS biological opinions for the project. One measure requires Delta Wetlands to replace at a 3:1 ratio any aquatic habitat lost as a result of construction activity. The type of habitat to be replaced to meet the mitigation requirements would depend on the type of habitat affected and the species and life stage of the species that would use the habitat. Delta Wetlands probably will be required to restore shallow vegetated habitat that would contribute to the resource agencies' ongoing restoration goals. Another FOC measure requires Delta Wetlands to conserve in perpetuity 200 acres of shallow-water rearing and spawning habitat. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

The effects of Delta Wetlands operations on the location of the entrapment zone are represented by estimated changes in X2 (Table 3F-2 in Chapter 3F), where X2 is the approximate upstream edge of the entrapment zone. The biological assessment (Appendix F2 of the 1995 DEIR/EIS) provides detailed information on potential project effects on X2. See Master Response 4 and response to Comment A7-3 for information about specific limits described in the FOC that govern project effects on the X2 location.

- **D13-14.** Available information does not support the comment that toxic spills from recreational boats could significantly affect local fish populations. Existing regulations govern operations of recreational facilities and boats. The FOC requirement that Delta Wetlands conserve in perpetuity 200 acres of shallow-water rearing and spawning habitat mitigates the potential increase in toxic spills from boating that may be associated with implementation of the Delta Wetlands Project. See also Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".
- **D13-15.** Existing regulations govern the operations of recreational facilities, including the discharge of sewage. The Delta Wetlands Project is not expected to significantly affect fish populations through discharge of sewage or other toxic materials. See response to Comment D13-14 regarding mitigation of potential effects on fish.

See also Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities". Delta Wetlands does not propose to provide pumpout facilities for boats because pumpout facilities are available in the vicinity of the project islands and in other locations throughout the Delta (see Figure 3E-4 of Chapter 3E, "Utilities and Highways").

- D13-16. The best available information was used in the impact assessment. The assumption that 50% of the smelt spawn on the Sacramento River side of the Delta and 50% on the San Joaquin River side provides for a conservative assessment (i.e., a scenario resulting in higher adverse impacts). Delta smelt appear to spawn primarily on the Sacramento River side of the Delta, further away from the influence of central- and south-Delta diversions and exports. The actual spawning distribution is currently unknown but probably varies according to water quality and flow conditions before and during spawning. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for a summary of the FOC terms and RPMs that reduce potential effects of the project on delta smelt to a less-than-significant level.
- **D13-17.** Shallow-water habitat would not be converted to deep-water habitat under the proposed project. See response to Comment D13-13 regarding FOC terms and RPMs that compensate for alteration of habitat. No shallow-water habitat would be provided on the habitat islands to offset project effects on fish.
- **D13-18.** The commenter is referring to the discussion of entrainment of splittail. Splittail spawn primarily upstream of the Delta; therefore, entrainment of larvae resulting from Delta Wetlands Project operations would be minimal. Salvage records for the SWP and CVP

indicate that entrainment of Sacramento splittail is restricted primarily to juveniles and adults. Juvenile and adult splittail would be large and would not pass through the Delta Wetlands fish screens. Because Delta Wetlands diversions would entrain or impinge few splittail, the impact was determined to be less than significant.

- **D13-19.** Cross-Delta flow is an index of habitat conditions that may increase entrainment in central- and south-Delta diversions. Delta Wetlands diversions and discharges to export would increase cross-Delta flows. Mitigation Measure F-3 was proposed in the 1995 DEIR/EIS to reduce to a less-than-significant level Impact F-4, "Potential Increase in the Mortality of Chinook Salmon Resulting from the Indirect Effect of Delta Wetlands Project Diversions and Discharges on Flows". This impact is now addressed by several FOC and biological opinion RPMs that replace Mitigation Measure F-3. See "Indirect Effects of Delta Wetlands Project Diversions and Discharges on Flows, Downstream Transport, Area of Optimal Salinity Habitat, and Entrainment" in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".
- **D13-20.** Mitigation Measure F-4 was proposed to reduce to a less-than-significant level Impact F-5, "Reduction in Downstream Transport and Increase in Entrainment Loss of Striped Bass Eggs and Larvae, Delta Smelt Larvae, and Longfin Smelt Larvae". This mitigation included actions to minimize changes in cross-Delta flows and reduce the subsequent effects on striped bass, delta smelt, and longfin smelt. Impact F-5 is now addressed by several FOC and biological opinion RPMs that replace Mitigation Measure F-4. See "Indirect Effects of Delta Wetlands Project Diversions and Discharges on Flows, Downstream Transport, Area of Optimal Salinity Habitat, and Entrainment" in Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".
- **D13-21.** Figures 3F-7, 3F-9, and 3F-11 in Chapter 3F show that Delta Wetlands Project diversions would have minimal effects on the annual availability of optimal salinity habitat for striped bass, delta smelt, and longfin smelt. Discontinuing agricultural diversions and changing the timing of diversions under proposed project operations could increase the area of optimal salinity habitat for striped bass and delta smelt. The habitat area for longfin smelt would be reduced slightly. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", and response to Comment A7-3 for information on FOC terms that limit project effects on the X2 location.
- **D13-22.** Delta Wetlands releases to outflow are limited by discharge capacity (about 6,000 cfs) and storage volume (238 TAF). Except when X2 is upstream of Suisun Bay (Delta outflow less than 28,000 cfs), Delta Wetlands discharges would be insufficient to move X2 a substantial distance downstream for any length of time. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for information about the operating restrictions specified in the FOC and biological opinion RPMs that reduce the potential project impacts to a less-than-significant level.

- **D13-23.** The fish screens must meet the requirements specified by DFG, NMFS, and USFWS and described in the FOC and biological opinions. See responses to Comments B6-60 and B7-70.
- D13-24. The commenter is referring to text that is part of Mitigation Measure F-5, which is proposed to reduce entrainment loss of juvenile striped bass and delta smelt. The potential entrainment effects of the proposed project have been reduced to a less-than-significant level by incorporation of the FOC and biological opinion RPMs into the proposed project. Therefore, this mitigation measure is no longer needed; however, the FOC and RPMs include similar requirements that Delta Wetlands provide for the conservation and replacement of habitat, allocate some water for environmental purposes, and provide funds for DFG to use for aquatic habitat restoration. DFG, NMFS, and USFWS would manage these resources. Habitat restoration activities would not be limited to the Delta Wetlands islands; the location and methods for habitat restoration would be determined by DFG, NMFS, and USFWS. Habitat restoration possibilities include stabilizing existing shallowwater habitat, converting deep-water habitat to shallow vegetated habitat, and converting existing agricultural lands to flooded tidal shallow-water habitat.
- **D13-25.** See response to Comment C14-36.
- **D13-26.** As it is discussed in the cumulative impact section on page 3F-35 of the 1995 DEIR/EIS (page 3F-39 of FEIS Volume 1), habitat refers primarily to structural features rather than to water quantity and quality (e.g., vegetated shallow-water areas and adjacent shaded riverine aquatic and riparian habitat).
- **D13-27.** The X2 requirements of the 1995 WQCP would ensure that the existing February–June salinity distributions would be maintained (i.e., the existing freshwater boundary would be in a similar location) and freshwater habitat toward Suisun Bay would not be lost because of increased salinity intrusion. Restoration of agricultural lands in the Delta to tidal shallow-water habitat would increase the area of freshwater habitat available to fish species.
- **D13-28.** The baseline for considering the impacts of the project under cumulative conditions is the existing no-project condition, which includes riprapped banks. Regulatory agency actions to improve Delta habitat are ongoing as part of CALFED, the Anadromous Fish Restoration Program (AFRP), and other programs described in the passage referred to by the commenter. When considered in combination with these actions, the temporary (construction-related) effects of the proposed project on habitat are less than significant. Also, the FOC and biological opinion RPMs now incorporated into the proposed project are designed to address the cumulative impacts of the proposed project, as well as the direct impacts. For details, see Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".
- **D13-29.** See response to Comment D13-28.

**D13-30.** To describe how the effects of Delta Wetlands Project operations under cumulative future conditions would compare with those described for existing conditions, it was necessary first to describe how project operations would be expected to differ under the two conditions. The sentences quoted by the commenter establish the assumption that the project would divert less water under future cumulative conditions because a smaller increment would be available for diversion by Delta Wetlands within the established regulatory limits.

The last paragraph of the referenced section indicates the general meaning of this assumed reduction in diversions in terms of project impacts on fish; it states that the effect of project operations on fish under future cumulative conditions were expected to be similar to or less than the effects under existing conditions. However, most impacts were expected to remain significant under future cumulative conditions. The specific information requested by the commenter was provided; see the species-specific impacts under cumulative future conditions (Impacts F-19 through F-23) in Chapter 3F (pages 3F-41 and 3F-42 of FEIS Volume 1).

**D13-31.** The 1995 WQCP includes minimum outflow objectives to protect estuarine habitat. It also includes fixed flow objectives for the Sacramento and San Joaquin Rivers to ensure the provision of attraction and transport flows and suitable habitat for various aquatic species. Delta Wetlands Project operations would not affect compliance with the minimum-outflow objectives in the 1995 WQCP, and it would not affect inflow from the San Joaquin, Sacramento, or Mokelumne Rivers. As stated on page 3H-27 of the 1995 DEIR/EIS (page 3H-30 of Volume 1 of this FEIS), compliance with existing water quality objectives and other requirements would ensure that changes in Delta outflow do not cause salinity changes that would be detrimental to the management of wetlands for wildlife in the Bay-Delta area, including Suisun Marsh and San Francisco Bay. Chapters 3G and 3H identify the potential contribution of Delta Wetlands to cumulative habitat and wildlife impacts and identify mitigation measures that would reduce those impacts to less-than-significant levels. Additionally, the FOC and biological opinion RPMs incorporated into the proposed project are designed to address the cumulative impacts of the proposed project as well as the direct impacts; these include impacts on fish species and their habitats. For details, see Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions".

If the regulatory requirements for freshwater flows in the Bay-Delta were to be changed, Delta Wetlands' allowable diversions could be reduced.

**D13-32.** The FOC and biological opinion RPMs incorporated into the proposed project are designed to address all direct and cumulative impacts of the proposed project, including impacts on flows and habitat. For details, see Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions". See also response to Comment D13-22 above.

- **D13-33.** The success of all habitat restoration actions is uncertain because of the current limited understanding of the relationship between habitat and the abundance and distribution of the fish population. The replacement ratio of 3:1 provides a margin of error in compensating for project impacts.
- **D13-34.** See responses to Comments D13-11, D13-30, and D13-31.
- **D13-35.** Acreage for each existing habitat type by project alternative is presented in Table 3G-4 in Chapter 3G, "Vegetation and Wetlands".
- **D13-36.** Potential project impacts on special-status plant populations and associated mitigation measures are described in Chapter 3G of the 1995 DEIR/EIS, on page 3G-12 (page 3G-12 of FEIS Volume 1). The text on mitigation states that surveys will be conducted to locate special-status plant species populations before facilities are constructed; facilities will be sited to avoid impacts on identified populations; special-status plants will be protected from construction and recreational activities; and if special-status plants cannot be avoided, Delta Wetlands will develop and implement a mitigation plan that has been approved by the lead agencies and other resource agencies. See also responses to Comments D10-1 and D10-2 from the California Native Plant Society.
- **D13-37.** All populations of special-status plant species on the Delta Wetlands Project islands were observed on the exterior levee slopes along Delta channels, so no known special-status plants would be affected by inundation of the Delta Wetlands Project islands. See Chapter 3G, Table 3G-2, and Figures 3G-1 through 3G-4.
- **D13-38.** Most of the riparian woodland was established on Holland Tract and Webb Tract after flooding in 1980. These areas were surveyed in 1988 to establish the environmental baseline for the impact analysis. Therefore, most of the 203 acres of riparian woodland described in the 1995 DEIR/EIS were a maximum of 8 years old. Table 4 of the HMP (Appendix G3) describes the methods used to identify riparian woodland and scrub habitats acreage necessary to mitigate project impacts. Affected riparian woodland habitat would be replaced at a ratio of 3:1 and riparian scrub would be replaced at a ratio of 2:1. Acreage replacement ratios in excess of 1:1 would compensate for loss of habitat values during the period needed for mitigation habitats to develop.
- **D13-39.** Alternative 3 represents the maximum water diversions under Delta Wetlands' water right application. Mitigation Measure G-4 requires offsite mitigation of impacts on jurisdictional wetlands because all four islands, except the portion of Bouldin Island north of SR 12, would be subject to inundation under Alternative 3. Alternative 3 is not the applicant's proposed project, and it is unlikely that this alternative would be permitted.
- **D13-40.** Impacts G-4 and G-6 (loss of special-status plants) describe the potential for impacts on special-status plants resulting from siting of a pump station, siphon station, recreation facility, or other project facility on a site occupied by a special-status plant population. Implementation of Mitigation Measures G-2 and G-3 would reduce these potential impacts

to a less-than-significant level. See also responses to Comments D10-1, D10-2, and D13-36.

- **D13-41.** Successful implementation of other habitat restoration or mitigation projects currently proposed for the Delta, in conjunction with the Delta Wetlands Project, would result in wetland and riparian habitats as described in Impact G-7 on pages 3G-15 and 3G-16 of the 1995 DEIR/EIS (page 3G-17 of FEIS Volume 1). The Delta Wetlands Project does not "take credit" for the efforts of other projects; however, the lead agencies must consider the cumulative effect (adverse or beneficial) of implementing the Delta Wetlands Project in conjunction with other past, present, and reasonably foreseeable future projects as required by NEPA and CEQA.
- **D13-42.** See responses to Comments D13-11 and D13-31. The effect of changes in peak flows on fish and their habitat has been addressed through the federal and California ESA consultation process since the comment letter was written. The FOC and RPMs include limits on the timing and volume of Delta Wetlands Project diversions to minimize effects on the estuarine system.
- **D13-43.** Chapter 3H includes a description of the significance criteria used in the analysis of impacts on wildlife resources. As stated in State CEQA Guidelines Section 15064(b), "an ironclad definition of significant effect is not possible because the significance of an activity may vary with the setting". The significance criterion cited by the commenter came from Appendix G of the State CEQA Guidelines, which listed examples of consequences that may be deemed to be a significant effect on the environment. This list was not inclusive and was used only for example purposes; Appendix G was removed from the State CEQA Guidelines in 1998.
- **D13-44.** As indicated under "Use of HEP Results" on pages 3H-11 and 3H-12 of the 1995 DEIR/EIS (page 3H-13 of FEIS Volume 1), because future habitat conditions on the reservoir islands are uncertain, wildlife habitats developed on the reservoir islands would not be used to compensate for project impacts on wildlife.
- **D13-45.** Implementation of the HMP would compensate for impacts on water birds and wading birds from operation of the reservoir islands. Impact H-2 on pages 3H-21 and 3H-22 of the 1995 DEIR/EIS (page 3H-23 of FEIS Volume 1) describes the net beneficial effect of the Delta Wetlands Project on nongame water and wading birds. As stated in the text, approximately 3,750 acres of additional wetland habitat would be created with implementation of the HMP.
- **D13-46.** Neotropical songbirds that have been observed on project islands are listed in Table H2-4 of Appendix H2. Although neotropical songbirds are not specifically addressed in the HMP, implementation of the HMP would compensate for the loss of habitat used by neotropical migrants. Impact H-1 on page 3H-21 of the 1995 DEIR/EIS (page 3H-23 of FEIS Volume 1) describes the changes in upland habitats on the project islands that could be used by songbirds. As described in the HMP, approximately 732 acres of herbaceous

upland habitat, 387 acres of riparian habitat, and a total of 4,691 acres of agricultural habitat types would be provided on the habitat islands. These habitats could be used by neotropical migrants as well as other species addressed in the HMP. See Appendices G3 and G5 of the 1995 DEIR/EIS for more information about changes in habitats under the Delta Wetlands Project.

- **D13-47.** See responses to Comments D13-45 and D13-46.
- **D13-48.** See response to Comment A5-8. The methods used to determine the types and area of habitat mitigation necessary to offset project impacts on wildlife are described generally in Chapter 3H of the 1995 DEIR/EIS on pages 3H-11 and 3H-12 (page 3H-13 of FEIS Volume 1) and in detail in Appendix G3, "Habitat Management Plan for the Delta Wetlands Habitat Islands". The HMP requires that Delta Wetlands provide more acres of waterfowl habitat for mitigation than would be required if hunting was not permitted on the habitat islands or was permitted to occur at the existing, very low levels of hunter use. See also response to Comment D13-54 below regarding the effect of the airport on wildlife values.
- **D13-49.** No mitigation credit is given for habitats created on the reservoir islands. See response to Comment D13-44.
- **D13-50.** No mitigation credit is given for habitats created on the reservoir islands. See response to Comment D13-44. Compensation habitats for greater sandhill crane are described in the HMP (Appendix G3) in Table 4 and Figures 2 and 3.
- **D13-51.** See response to Comment D13-46.
- **D13-52.** The HMP (Appendix G3) describes management and development of compensation habitats for greater sandhill cranes. Table 4 describes habitats that would be used by cranes and Table 12 describes management strategies for managing foraging and roosting habitat. As indicated in Figures 2 and 3, potential roosting and foraging habitats would be in close proximity.

As described in response to Comment D13-38, mitigation habitat is created at a ratio greater than the amount lost to compensate for the time needed to establish the desired habitat values in replacement habitat.

- **D13-53.** Mitigation Measure H-1 on page 3H-24 of the 1995 DEIR/EIS (page 3H-26 of FEIS Volume 1) describes mitigation required to offset potential impacts associated with project construction on special-status wildlife species. The second paragraph of the mitigation measure identifies avoidance of construction during sensitive periods of wildlife use as a potential mitigation measure.
- **D13-54.** The potential impact of airstrip operations on greater sandhill cranes and wintering waterfowl is described in Impact H-16 on pages 3H-24 and 3H-25 of the 1995 DEIR/EIS

(page 3H-27 of FEIS Volume 1). The airstrip is an existing facility used for agricultural operations on Bouldin Island. The magnitude of effects of airstrip operations on the use of areas closed to hunting and other island habitats by greater sandhill cranes and other species is not known. Mitigation Measure H-2 requires monitoring of greater sandhill crane and waterfowl behavior in relation to airstrip use to identify adverse effects on these species. Use of the airstrip would be modified, as necessary, to avoid adverse impacts identified during monitoring. The commenter recommends relocating the airstrip from the closed hunting zone to a permitted hunting area as a mitigation measure for this potential impact. However, relocating the airstrip to a hunting zone could result in safety issues for aircraft operations and could displace other habitat. As indicated in the discussion of Mitigation Measure H-2, DFG and the HMAC may recommend various measures to reduce disturbance of sandhill cranes; these include closing the airstrip on hunting days. Alternatively, DFG and the HMAC could consider relocation of the airstrip if monitoring indicates that airstrip operations have an adverse effect on sandhill cranes.

- **D13-55.** The effects of hunting on waterfowl distribution relative to the potential for disease outbreaks is described in Impact H-17 on pages 3H-25 and 3H-26 of the 1995 DEIR/EIS (pages 3H-27 and 3H-28 of the FEIS Volume 1). As indicated in the fourth full paragraph, large numbers of waterfowl could be expected to congregate in closed hunting zones on hunt days.
- **D13-56.** The HMP (Appendix G3) describes hunter use restrictions in Table 19 and enforcement of the hunting program on pages 20 and 21.
- **D13-57.** A discussion of passive nonconsumptive recreational uses of the Delta Wetlands Project islands is provided in Chapter 3J, "Recreation and Visual Resources", on page 3J-13 of the 1995 DEIR/EIS (page 3J-15 of FEIS Volume 1). Refer to the paragraph under the section "Other Recreational Uses". Impact J-5 on page 3J-15 (page 3J-17 of FEIS Volume 1) describes the beneficial effect that the Delta Wetlands Project would have by increasing private recreation use-days in the Delta for other recreational uses. Private nonconsumptive recreation use would be available year round on the Delta Wetlands Project islands, whereas hunting would only occur during the legal hunting season (fall and early winter).
- **D13-58.** See responses to Comments A5-8, D13-48, and D13-54. Table 19 of the HMP (Appendix G3) describes restrictions on recreational uses on habitat islands to reduce impacts on wildlife.
- **D13-59.** Potential impacts of the hunting program were incorporated into the modified habitat evaluation procedures (HEP) analysis conducted for HMP development. The analysis indicated that implementation of the HMP and the hunting program would ensure that waterfowl would use the habitat islands at levels that would offset project impacts on wintering waterfowl. Because the increased waterfowl mortality associated with hunting would be expected to be offset by increased duck production on the habitat islands, this impact is considered less than significant.

- **D13-60.** Potential effects of changes in Delta outflow on wildlife and their habitats are described on pages 3H-27 and 3H-28 of the 1995 DEIR/EIS (page 3H-30 of FEIS Volume 1) under "Impact H-22: Potential Effects on Wildlife and Wildlife Habitats Resulting from Delta Outflow Changes". Certain assumptions were made in the 1995 DEIR/EIS about the adequacy of the 1995 WQCP for protection of fishery and wildlife resources; however, it is not within the scope of the analysis to determine the adequacy of existing water quality objectives and other requirements. See also responses to Comments A4-7 and D13-2.
- **D13-61.** See Response to Comment D13-60.
- **D13-62.** Establishment of riparian scrub habitat on habitat islands is described on page 10 of the HMP (Appendix G3). The second paragraph under "Riparian Scrub" states that riparian scrub may become established naturally in ditches, canals, and levee slopes. Stands of riparian species that become established voluntarily in these locations are not considered compensation for project impacts.
- **D13-63.** HMP goals and objectives were prioritized based on the level of impact on existing wildlife uses. As indicated in Tables 17 and 18 of the HMP (Appendix G3), implementation of the HMP is expected to provide benefits for many other migratory bird species.
  - Compensation for impacts on the Swainson's hawk is described on page 2 of the HMP. As indicated in the first complete paragraph, all compensation for this species is provided on the habitat islands. See also response to Comment D13-44.
- **D13-64.** The HMP text referred to by the commenter describes jurisdictional wetlands. The jurisdictional wetlands on the Delta Wetlands Project islands are defined under Section 404 of the Clean Water Act and were delineated by USACE and the NRCS. The habitat types on the Delta Wetlands Project islands that are considered jurisdictional wetlands include riparian woodland and scrub, freshwater marsh, exotic marsh, canals and ditches, permanent ponds, and other jurisdictional habitats. These "other" jurisdictional habitats include lands mapped as grain and seed crop, annual grassland and exotic perennial grassland, and developed lands delineated by the NRCS and USACE in 1994. See Appendix G5, "Summary of Jurisdictional Wetland Impacts and Mitigation", for more information on the delineation of jurisdictional wetlands on the Delta Wetlands Project islands.
- **D13-65.** Procedures used to determine the acreage and quality of habitat types necessary to compensate for impacts are described on pages 3H-11 and 3H-12 in the 1995 DEIR/EIS (pages 3H-12 and 3H-13 of the FEIS Volume 1) under "HMP Development". Fewer acres of waterfowl habitat are necessary to compensate for a larger acreage of foraging habitat affected by the project because compensation habitats provide substantially greater waterfowl forage values on a per-acre basis than existing habitats. Refer to the HMP (Appendix G3) for more information.
- **D13-66.** See response to Comment D13-52.

- **D13-67.** Species goals and objectives for waterfowl breeding habitat on the habitat islands are described on pages 5–6 of the HMP (Appendix G3). As indicated under "Waterfowl Breeding Habitat", nesting boxes would be established on the habitat islands and not on the reservoir islands. See also response to Comment D7-1.
- **D13-68.** Recreation on the habitat islands is described in the HMP (Appendix G3) and in Chapter 3J. Permissible recreation is described on pages 6–7 of the HMP and restrictions on recreation are described in Table 19. See response to Comment D13-57.
- **D13-69.** Islands to be constructed in permanent lakes on Bouldin Island are described on page 11 and in Table 2 of the HMP (Appendix G3). Sizes of islands to be constructed were determined by the HMP team and are designed to provide high values for waterfowl and other species.
- **D13-70.** Pages 11–13 of the HMP (Appendix G3) describe the process that would be used to ensure Delta Wetlands compliance with the HMP. As indicated in the first paragraph of this section, the chief of the SWRCB's Division of Water Rights maintains the ultimate responsibility for ensuring that Delta Wetlands implements the HMP in compliance with its water right permit. The preliminary HMAC organization is described in Table 22.
- **D13-71.** The HMP (Appendix G3) identifies performance standards and goals for assessing the success of implementing the HMP (see page 17 of the HMP under "Performance Standards and Goals"). Performance standards are presented in Table 24 and performance goals are shown in Table 25. The performance standards are based on achieving compliance with the compensation management guidelines described in Table 2. Performance standards are not based on wildlife use levels because use levels can be affected by environmental and other factors outside the control of Delta Wetlands (e.g., periods of severe drought in waterfowl breeding areas could substantially reduce wintering waterfowl populations regardless of how waterfowl habitat is maintained on the islands).
- **D13-72.** Recommended maintenance of emergent marshes on the habitat islands is described on page 20 and in Table 2 of the HMP (Appendix G3). As indicated in Table 2, a minimum of 30% emergent cover must remain after treatment to control dense stands of emergents to maintain open-water areas. As described on page 11 of the HMP under "Annual Operating Plans", Delta Wetlands would be required to submit a plan for agency and HMAC review before implementing measures to control vegetation in emergent marshes to ensure compatibility of treatment periods and methods with overall HMP goals and objectives.
- **D13-73.** As described above, the chief of the SWRCB's Division of Water Rights maintains the ultimate responsibility for ensuring that Delta Wetlands implements the HMP in compliance with its water right permit.
- **D13-74.** See responses to Comments D13-48 and D13-54.



# CALIFORNIA URBAN WATER AGENCIES

December 21, 1995

California State Water Resources Control Board Division of Water Rights P.O. Box 2000 Sacramento CA 95812-2000 Attention: Jim Sutton

U.S. Army Corps of Engineers Regulatory Branch 1325 J Street, 14th Floor Sacramento CA 95814-2922 Attention: Jim Monroe

Subject:

Draft Environmental Impact Report and Environmental Impact Statement

for the Delta Wetlands Project (September 11, 1995)

Dear Mr. Sutton and Mr. Monroe:

The California Urban Water Agencies (CUWA) is an organization which represents eleven major water providers serving municipal and industrial water to over 20 million people with water diverted from the Sacramento-San Joaquin Delta or its tributaries. Our member agencies use about 90% of the urban water supplies taken from the Delta. As such, CUWA is vitally interested in any new projects in the Delta that might enhance the reliability of this water supply. At the same time, CUWA is concerned about any new projects that might degrade this quality of this water supply. Our members are presently involved in the California State Water Resources Control Board (SWRCB), CALFED and Central Valley Project Improvement Act implementation processes to improve water quality and habitat conditions in the Delta and its tributaries. This concerted effort is the result of the recent December 15, 1994 signing of the Principles for Agreement on Bay-Delta Water Quality Control Plan (WQCP) by the SWRCB.

This letter sets forth CUWA's comments to the September 11, 1995 Draft Environmental Impact Report and Environmental Impact Statement ("EIR/EIS") for the Delta Wetlands Project. The first part of the comments address project impacts and suggests additional mitigation measures. The second part describes uncertainties in the quantitative estimates of project impacts and addresses the need for additional and more detailed modeling.

# Impacts of Delta Wetland Diversions

During diversion operations, the Delta Wetlands project will increase the salinity at Delta drinking water intakes by significantly reducing Delta outflow. Under the Alternatives 1 and 2, the maximum diversion rate to the two reservoir islands, Webb Tract and Bacon Island, could be as high as 9,000 cfs for up to 14 days. The operations studies reported in the Draft EIR/EIS suggest that these pumps might be turned on when the Delta outflow is as low as 10,000 cfs, resulting in a significant intrusion of ocean-derived salts. Figure 3C-18, for example, shows increases in chloride concentrations at the export pumps of about 50 mg/l. This will cause unacceptable impacts on municipal water supplies. In the case of the Contra Costa Water District (CCWD), this would also impair the operation and reduce the performance of the Los Vaqueros Project.

The Delta Wetlands project should propose mitigation measures to avoid these significant impacts. For example, these could include allowing Delta Wetlands diversions to storage only if: (1) the 2 ppt isohaline is beyond a given location west of Chipps Island, and (2) provided a sufficiently protective salinity level at an interior location such as Jersey Point has been met for at least 7 days and continues to be met while water is diverted by Delta Wetlands. Thee requirements could be expressed in terms of specific conductance at Chipps Island and Jersey Point, and might be consistent with Delta outflows in excess of 20,000 cfs. Similarly, the combined pumping rate onto the reservoir islands could be limited to less than 9,000 cfs or even below 4,000 cfs, or allowable diversions could be a function of outflow.

2. The Delta Wetlands project may divert fish flows and other public trust flows released by other water agencies (e.g. the pulse flows required under the May 1995 Water Quality Control Plan and East Bay Municipal Utility District's (EBMUD) releases on the Mokelumne River).

The project proponents should propose mitigation to avoid these significant impacts, for example, by limiting Delta Wetlands diversions when other agencies are making public trust releases related to fish passage to and through the Delta.

The Delta Wetlands project may divert water from the Delta during fish-sensitive periods when other water agencies are foregoing some or all diversions or altering their operations to provide fisheries benefits. The operations studies in the Draft EIR/EIS show Delta Wetlands monthly-average diversions in the March through May period to be as high as 3,800 cfs (Table A3-7a). During this period, other diversions are restricted for the protection of fisheries resources (for example, the SWRCB's May 1995 WQCP and

D14-1

D14-2

CCWD operating under its Los Vaqueros water rights permit). Delta Wetlands diversions during periods when other water users are restricted from diverting, or required to change their operations, may reduce these fisheries benefits. Project impacts on fisheries should be avoided. Delta Wetlands operations which detract from or reduce the benefits derived from limits on the operations of others should be avoided.

D14-3 cont'd

The project proponents, as the most junior appropriator, should mitigate for these impacts by applying limits on Delta Wetlands diversions that are at least as restrictive as those imposed on other projects.

4. The Delta Wetlands project may cause significant fisheries impacts by changing flow patterns in the western Delta and by changing the salinity cues that are believed to direct fish passage through the Delta. Any impacts on fish abundance by Delta Wetlands could lead to more restrictive limits on the diversions and exports by CUWA member agencies, reducing their available water supply.

D14-4

The project proponents should propose actions that mitigate these impacts, e.g. monitoring and fish transfer operations if found necessary.

# Impacts of Delta Wetland Discharges

1. Storage of water on peat islands for extended periods of time will likely result in increased concentrations of organic carbon, algae, salinity and other contaminants. Release of this water could have unacceptable adverse effects on municipal water supplies, e.g. by causing increased production of trihalomethanes and haloacetic acids during the water treatment process. This impact must be avoided. The statement on page 2-1 that the project would increase the availability of "high quality water in the Delta for export" is not supported.

D14-5

Water treatment or other means that ensure this does not significantly impact water utilities should be proposed, and the ability of the project to carry out the mitigation measures should be addressed. The Draft EIR/EIS needs to give more details of the procedures to limit discharges as needed (Mitigation Measure C-7).

2. There will be times when the salinity of the discharge from Delta Wetlands islands exceeds that of the receiving water. This will have the effect of degrading the Delta water supply. However, CUWA also recognizes that there will also be times when the salinity of the discharges may be lower than the receiving water The negative impacts of Delta Wetlands

discharges may not in all cases by fully mitigated by these improvements. The negative impacts should be avoided or mitigated.

The Delta Wetlands project should propose mitigation measures to avoid these adverse impacts. For example, these could include allowing Delta Wetlands diversions to storage only if the 2 ppt isohaline is beyond a given location west of Chipps Island, provided a sufficiently protective salinity level, at an interior location such as Jersey Point, has been met for at least 7 days and continues to be met while water is diverted. These requirements could be expressed in terms of specific conductance at Chipps Island and jersey Point, and might be consistent with Delta outflows in excess of 20,000 cfs. This mitigation measure will help ensure that only low salinity water is diverted onto the reservoir islands. Additionally, diversions could be limited to periods when the salinity was below a given threshold and discharges could be limited to periods when the discharge salinity is no more than a given amount above the salinity in the Delta channels.

3. Discharges from Delta Wetlands islands into shallow channels, e.g. Sante Fe Cut, will cause increased turbidity in water diverted at Delta water supply intakes.

This impact should be avoided, for example, by relocation of discharge points to deeper channels away from affected water supply intakes.

- 4. The Draft EIR/EIS also needs to consider an alternative that terminates or limits agricultural drainage from Delta Wetlands islands. This would help downstream municipal water facilities in meeting current and future drinking water standards. This alternative would be a No Project-No Intensive Agriculture alternative.
- The project proponents should consider managing Delta Wetlands discharges by providing a direct piped connection between the reservoir islands and export locations. This may require choosing different islands as reservoir islands to reduce pipeline distances. From water quality considerations, islands with mineral soils would be preferable to peat soil islands for water storage. Such a piped connection would allow the option of direct connection to export locations or direct discharge to the delta, allowing delta water quality and export water quality to be more carefully managed.

## Other Impacts

 Seepage from the Delta Wetlands reservoir islands may affect the safety of the Mokelumne Aqueduct on Woodward Island and Orwood Tract. The project proponents D14-6 cont'd

D14-7

D14-8

need to provide more detail regarding the seepage performance standards and the seepage control and monitoring system in these area.

D14-10 cont'd

2. The effect of wind mixing in shallow wetland areas on Delta islands may be to increase the production of dissolved organic carbons. The project proponents should address this potential impact.

D14-11

3. The Draft EIR/EIS needs to detail appropriate safeguards to protect urban water supplies from accidental spills and contamination from on-island marinas. Details regarding sanitary disposal and pump out facilities should be included.

D14-12

4. The Draft EIR/EIS also needs to address cumulative effects of DWR's proposed Interim South Delta Plan and a fully mitigated Delta Wetlands project on the beneficial users of Delta water.

D14-13

# Methodological and Modeling Deficiencies

1. The Draft EIR/EIS analysis uses a Delta operations model (DeltaSOS) that does not have the ability to reoperate upstream reservoirs or account for changes in reservoir storage and demand south of the Delta. Without this information, the relationship between available export pumping capacity and the ability of Delta Wetlands to sell water south of the Delta is not clear. Similarly, the possible benefits of saving water in upstream reservoirs and discharging Delta Wetlands water for export instead are difficult to quantify.

D14-14

The modeling could be improved by incorporating a Delta Wetlands project node into a Central Valley operations model such as DWRSIM. This process would help ensure that changes in exports caused by Delta Wetlands operations are properly reflected in the reoperation of upstream and south-of-Delta reservoirs.

D14-15

2. The Draft EIR/EIS treats CCWD's intakes and the SWP and CVP export pumps as a single south Delta point of diversion with the same water quality. In reality, the chlorides at the Rock Slough intake to the Contra Costa Canal can be significantly higher than export water quality during periods of seawater intrusion. Conversely, during periods of significant agricultural drainage from the San Joaquin Valley, the land-derived salts at the CVP's Tracy Pumping Plant may be significantly higher than at Rock Slough. For individual CUWA agencies to be able to assess the impact at their diversion points, it is important that a more detailed water quality model be used.

More detailed water quality results could be obtained by incorporating a Delta Wetlands operations algorithm into a validated Delta hydrodynamic and salinity model such as the Fischer Delta Model and operating the model over the full historical hydrologic period, 1922-1991.

D14-15 cont'd

3. The Draft EIR/EIS uses a Delta hydrodynamic and salinity model to simulate historical water quality conditions that fails to adequately simulate water quality at the Rock Slough intake to the Contra Costa Canal. The data presented in Figure 3-C-13 of the Draft, EIR/EIS shows substantial disagreement between simulated and measured data using the R.A. model, particularly during drought periods with salinity intrusion. The DeltaDWQ model also fails to adequately model Rock Slough chlorides, in particular during periods of agricultural drainage.

D14-16

The proponents need to use a validated Delta hydrodynamic and salinity model such as the Fischer Delta Model.

D14-17

- 4. The methodology used in the Draft EIR/EIS to simulate water quality at the western Delta and at the export pumps does not appear to account for the time lag between salinity changes at these locations. The time lag between Jersey Point and Rock Slough for example is about 14 days, whereas the DeltaDWQ model produces simultaneous salinity changes at these two locations.
- D14-18

The analysis of the impacts of the Delta Wetlands Project on THM formation potential and impacts on total organic compounds (TOC) are underestimated with respect to future water quality standards. The impact of the project needs to be assessed relative to the 80 ug/1 TTHM MCL that takes effect in June 1996 and the 40 ug/1 MCL expected to be promulgated a few years later. Similarly, the Disinfectant Disinfection By-Products (D/DBP) Rule proposes MCLs for five specified haloacetic acids (HAA) which are not discussed or studies in the Draft EIR/EIS. Phase I of the D/DBP rule will introduce an MCL of 10 ug/1 for bromate. This also needs to be discussed in the Draft EIR/EIS.

The project proponents need to compare the Delta Wetlands project THM, HAA, and TOC impacts against these new requirements.

6. The Draft EIR/EIS uses an older version of the Malcolm-Pirnie water treatment plant model to analyze THM production from Delta water. A new set of equations used in the new versions of the model was designed to compensate for the high bromide concentrations in Delta waters (page C5-6 of the Draft EIR/EIS). The project proponents need to compare the results of the old model with the new model to test the validity of the

assumption that recent model improvements are not expected to change the impact assessment results (see page C5-6).

D14-19 cont'd

7. The thresholds used in the Draft EIR/EIS for chloride concentration changes at drinking water intakes are set too high. The 90% of maximum and 20% change criteria represent significant impacts on water quality and water supply. For example, a 20% change in a chloride concentration of 150 mg/1 is a 30 mg/1 increase.

D14-20

8. The Draft EIR/EIS uses analyses which do not accurately reflect the likely mitigated operations of the project. The differences between the impacts of the proposed and mitigated projects are likely to be significant.

D14-21

# Conclusions

In summary, the Draft EIR/EIS is inadequate in a number of respects. The Draft EIR/EIS is legally required to contain a detailed mitigation monitoring plan to ensure identified mitigation can reduce adverse impacts to a level of insignificance. To do this mitigation measures must result in a project that does not significantly affect Delta water quality; that it does not impair the beneficial uses to which the water is put; that it does not adversely affect the users of Delta water; that it does not cause unacceptable adverse impacts on municipal and industrial water supplies; that it does not conflict with the operations of other water supply or water quality and reliability projects; and that it would not harm endangered and threatened species. The impacts to water quality and aquatic wildlife that have been identified in this letter need to be clearly demonstrated to be avoided, mitigated to a level of insignificance or identified as significant and unavoidable.

D14-22

We appreciate your consideration of these comments and look forward to helping Delta Wetlands resolve issues of concern. If you have any questions, please contact me at (916) 552-2929.

Sincerely,

Byron M. Buck

Executive Director

BMB/RAD:ccg.348

cc: CUWA Member Agencies

Rick Woodard (DWR)
Terry Erlewine (SWC)
John Winther (Delta Wetlands)

## **California Urban Water Agencies**

Comments in this letter often duplicate or are similar to comments received from the Contra Costa Water District (Comment Letter C9). Where appropriate, the commenter is referred to responses to those similar comments.

- **D14-1.** See response to Comment C9-21.
- **D14-2.** This comment duplicates Comment C9-23. See response to Comment C9-23.
- **D14-3.** This comment duplicates Comment C9-22. See response to Comment C9-22.
- **D14-4.** This comment duplicates Comment C9-24. See response to Comment C9-24.
- **D14-5.** See response to Comment C9-25.
- **D14-6.** See response to Comments C9-26.
- **D14-7.** See response to Comment C9-27.
- **D14-8.** See response to Comment C9-28.
- **D14-9.** See response to Comment C9-29.
- **D14-10.** See responses to Comments C6-1 and C6-2 from EBMUD regarding the safety of the Mokelumne Aqueduct.
- **D14-11.** See response to Comment C9-32.
- **D14-12.** See Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities". Delta Wetlands does not propose to provide pump-out facilities for boats because such facilities are available in the vicinity of the Delta Wetlands Project islands and other locations throughout the Delta, as shown in Figure 3E-4 of Chapter 3E, "Utilities and Highways".
- **D14-13.** See responses to Comments C9-31 and B7-3.
- **D14-14.** See response to Comment C9-10.
- **D14-15.** See response to Comment C9-12.
- **D14-16.** See response to Comment C9-13.
- **D14-17.** See response to Comment C9-14.

- **D14-18.** See response to Comment C9-15.
- **D14-19.** See response to Comment C9-16.
- **D14-20.** See response to Comment C9-17.
- **D14-21.** See response to Comment C9-18.
- **D14-22.** See response to Comment C9-56.

# **Section E. Individuals and Other Interested Parties**

E1-1

Rob Fletcher 1878 Catalina Ct. Livermore, CA 94550 510-447-3643

10-18-95

Mr. Jim Sutton California State Water Resources Control Board Division of Water Rights P.O. Box 2000 Sacramento, CA 95812-2000

Dear Mr. Sutton,

I am a landowner on Sherman Island and water issues in the Delta are of the utmost importance. Upon viewing the draft EIR/EIS for the Delta Wetlands project, this is the type of project that would seem to benefit everyone.

Storing surplus water during high flows and releasing it during low flows makes sense. Also, it should help reduce "reverse flows" caused by the State pumps during the critical dry months.

In addition, it will add shallow water wetlands in the Delta area for early arriving waterfowl, something that is currently unavailable in this area.

For the reasons I am supporting the Delta Wetlands' project and look forward to its approval.

Sincerely,

Rob Fletcher

## **Rob Fletcher**

**E1-1.** The lead agencies acknowledge this comment supporting the project. Because this letter does not specifically comment on the environmental analysis in the 1995 DEIR/EIS, no response is required.

E2-1

George C. "Tim" Wilson P.O. Box 248 95690 Walnut Grove, CA

october 20, 1995

Mr. Jim Sutton State Water Resources Control Board P.O. Box 2000 95812-2000 Sacramento, CA

Dear Mr. Sutton:

I have reviewed the Deir/Eis for the Delta wetlands project. It would appear that the project would reduce the threat of flooding on the four islands because of the larger levees. Subsidence would stop on the portions that remain under water. I would expect long term benefits to the Delta if this project is completed.

George C. "Tim" Wilson

Reclamation District No. 563 - Tyler Island Reclamation District No. 556 - Upper Andrus Island Reclamation District No. 554 - Walnut Grove Tract

Reclamation District No. 2111 - Dead Horse Island

GCW: 1me

## George C. "Tim" Wilson

**E2-1.** The lead agencies acknowledge this comment supporting the project. The effects of strengthening the Delta Wetlands Project island levees and operating the reservoir islands are discussed in Chapter 3D, "Flood Control". Because this letter does not specifically comment on the environmental analysis in the 1995 DEIR/EIS, no response is required.

Daniel M. Wilson P.O. Box 248 Walnut Grove, CA 95690

October 20, 1995

Mr. Jim Sutton State Water Resources Control Board P.O. Box 2000 Sacramento, CA 95812-2000

Dear Mr. Sutton:

Your Delta Wetlands project has many positive aspects for the Delta. It is apparent that it will enhance water storage and wildlife. The fact that this is compatible with local farming operations is also important.

More importantly, I feel this project will bring a new land use to the Delta. This brings an economic diversity that help the local communities survive the swings in agricultural prices. In addition, it should improve land prices in the long term.

I would like pass along my support for your project. It will be of great to the Delta.

sinderely:

Daniel Wilson

RD 2111 Riverside Elevators

Kay Dix

E3-1

## Daniel M. Wilson

**E3-1.** The lead agencies acknowledge this comment supporting the project. Because this letter does not specifically comment on the environmental analysis in the 1995 DEIR/EIS, no response is required.

E4-1

E4-2

# ELLIS ISLAND FARMS, INC.

QUIMBY ISLAND - RECLAMATION DISTRICT No. 2090

22 Battery Štreet. Suite 800 San Francisco. California 94111 Telephone (415) 391-5034

October 26, 1995

Mr. Jim Sutton California State Water Resources Control Board Division of Water Rights P. O. Box 2000 Sacramento, California 95812-2000

Re: Comments on Draft EIR/EIS, Delta Wetlands Project

Dear Mr. Sutton:

I have briefly reviewed the Draft Environmental Impact Report for the Delta Wetlands Project and would like to make the following comments:

- 1. The deep peat soils of the Delta, especially in the central western Delta, face a limited future in farming and it makes sense to convert those islands to wetlands or reservoirs in order to ensure their permanence on a sound economic bases.
- 2. The project proponent appears to be pursuing an aggressive seepage control program, which I wholeheartedly endorse.
- 3. The wetland enhancement aspects of the project appear to be producing significant benefits which will be welcomed. The most important impact, the possibility of waterfowl disease, can be addressed by changing the management of the habitat islands to allow light hunting over the entire island without closed zones. The closed zone contemplated on Holland Tract may have a significant adverse impact on Quimby Island. Opening the closed zone to hunting is an appropriate mitigation for the possibility of having a breakout of waterfowl diseases.

I urge you to process the water right application at the earliest possible date so that this project can be brought on-line as soon as possible.

Thank you for considering these comments.

Sincerely,

Ellis M. "Steve" Stephens

Owner, Quimby Island

Trustee, Reclamation District No. 2090

### Ellis M. "Steve" Stephens (Ellis Island Farms, Inc.)

- **E4-1.** The effects of subsidence on Delta islands and the proposed seepage control program for the Delta Wetlands Project are described in Chapter 3D, "Flood Control". Because this comment does not specifically address the environmental analysis in the 1995 DEIR/EIS, no response is required.
- **E4-2.** The commenter is concerned that establishing areas closed to hunting would increase the risk of outbreaks of botulism and avian cholera. Hunting or hazing in closed hunting zones is not precluded as a potential management action, but such a change in habitat island management would have to be justified. See response to Comment D7-3.

# D& L Farms

P.O. Box 620 Linden, California 95236 Telephone: (209) 887-2538

November 1, 1995

California State Water Resources Control Board P.O. Box 2000 Sacramento, California 95812-2000

ATTENTION: Jim Sutton

RE: DELTA WETLANDS PROJECT

Dear Mr. Sutton:

As a tenant farmer of a portion of Bacon Island, I wanted to write and express my feelings regarding the proposal of Delta Wetlands to store water on two delta islands, including Bacon Island.

Obviously, if the project is approved I will be forced to seek other farm ground in the delta, or an alternative means of support. While I personally do not look forward to either scenario, I feel that the proposed project would be beneficial to the overall health and longevity of the entire delta, as well as agricultural interests located in that region--and it should be approved.

Bacon Island has a limited life as a viable farm ground. I have come to this realization after my observation of the eroding away of surface peat soil, which leaves a combination of soil types at the surface or near it. The existance of this condition has increased on an ongoing basis and makes farming of that particular ground more difficult and less productive as time passes. Farming practices and techniques for peat ground are not compatible with farming techniques and practices for mineral or other types of soil; and, consequently, the combination of soils at the surface will eventually render Bacon Island unfarmable. This eroding is known as "land subsidence" and the Soil Conservation Service estimates it occurs at a rate of about 1 to 4 inches per year. I personally became familiar with Bacon Island, Camp 6 ranch, in 1977 when I started farming it, and it is my opinion that the subsidence may have been more than four inches per year on that particular ground, because, as I mentioned, I have observed a drastic change in the composition of soil near its surface since 1977.

Mr. Jim Sutton Calif. State Water Resources Control Board November 1, 1995 Page Two

Another reason I support the project is that it ensures the future health of the delta levees surrounding the islands involved. As I mentioned, if this project becomes a reality, it is my intent to seek other farm ground in the delta to lease. It would be in my interests to have a strong levee system on not only the island I would be directly based upon, but all delta islands, as this would prevent the "domino effect" of flooding and weakening of neighboring levees which I am sure you are familiar with. It is no secret that the economics of farming fluctuate drastically. I am concerned that during those "lean" times, farming may not generate enough revenue to maintain the levees at a level that would prevent deterioration. Collection of reclamation assessments could become directly affected since farming generates the revenue that the reclamation assessees rely on to pay the assessments. It is my belief that by diversifying the use of ground within the delta system, an element would then exist in the process that would provide a degree of insulation to the reclamation districts during the "hard times of farming."

Regarding the issue of a decrease in productive farmground should the project be approved; I remind you of the existance of government programs which require a grower to take a portion of land out of production in order to receive crop subsidies. I do not believe these programs resulted in any type of shortage of food to the American public. On the contrary, we still enjoy vast surpluses and an abundance of the same crops as before the government "set aside land" programs came into effect.

In summary, I feel that the benefits resulting from the implementation of the proposed project would far outweigh any adverse impact generated by it; and it is my hope that it becomes a reality. If you have any questions, concerns or comments regarding the topics I have addressed or any other relating to the proposal, please do not hesitate to give me a call at (209) 887-2538.

Sincerely,

Leisha Robertson

Kobertson

D & L FARMS

E5-2

E5-3

#### Leisha Robertson (D & L Farms)

- **E5-1.** The commenter's observations about soil subsidence on Bacon Island are consistent with the discussions in the 1995 DEIR/EIS (see Chapters 2, "Delta Wetlands Project Alternatives"; 3D, "Flood Control"; and 3I, "Land Use and Agriculture" of the 1995 DEIR/EIS and Volume 1 of this FEIS).
- **E5-2.** Chapter 3D, "Flood Control", describes the potential benefits of strengthening the Delta Wetlands Project island levees and changes in levee funding on the Delta Wetlands Project islands. Chapter 3K, "Economic Conditions and Effects", discusses the economic and fiscal effects of the Delta Wetlands Project. As noted by the commenter, implementing Alternative 1, 2, or 3 would diversify the land use and economy of the Delta area.
- **E5-3.** Regardless of the effects of federal land set-aside programs on food availability or prices, the conversion of agricultural land on the Delta Wetlands Project islands would represent the loss of a productive natural resource. Chapter 3I fully describes the quality of the farmlands on the Delta Wetlands Project islands and the effects of converting these farmlands to nonagricultural use.

### KYSER SHIMASAKI

4412 MALLARD CREEK CIRCLE STOCKTON, CA 95207

NOVEMBER 20, 1995

MR. JIM CANADAY DIVISION OF WATER QUALITY AND WATER RIGHTS STATE WATER RESOURCES CONTROL BOARD PO BOX 2000 SACRAMENTO, CA 95812-2000

#### ~ DEAR MR. CANADAY:

I AM TAKING THIS OPPORTUNITY TO RESPOND TO THE DRAFT ENVIRONMENTAL IMPACT REPORT PREPARED FOR THE DELTA WETLANDS PROJECT. MY COMMENTS WILL BE BRIEF BECAUSE I BELIEVE THAT THE DOCUMENT IS VERY THOROUGH IN ITS ANALYSIS.

- OUR FAMILY HAS BEEN FARMING IN THE SAN JOAQUIN DELTA. BACON ISLAND IN PARTICULAR. AS TENANT FARMERS SINCE 1918, SHORTLY AFTER IT WAS RECLAIMED AND AS LANDOWNER FARMERS SINCE 1974.
- OVER THE PAST 39 YEARS THAT I HAVE PERSONALLY BEEN INVOLVED IN FARMING ON BACON ISLAND, I HAVE OBSERVED THE CUMULATIVE SUBSIDENCE OF THE LAND AND IT IS BECOMING A SERIOUS THREAT TO THE INTEGRITY OF THE LEVEES. UNTIL APPROXIMATELY TEN YEARS AGO, 90% OF BACON ISLAND'S SURFACE WAS PEAT SOIL AND HIGH INCOME CROPS JUSTIFIED RECLAMATION ASSESSMENTS TO IMPROVE AND MAINTAIN THE LEVEES SURROUNDING BACON ISLAND. PRESENTLY, WE ON BACON ISLAND. SIMILARLY WITH OTHER FARMERS IN THE DELTA, ARE CONSTANTLY STRUGGLING TO FIND A NEW PROFITABLE CROP TO JUSTIFY MORE REVENUES TO BUTTRESS OUR LEVEES.

E6-1

3. WE HAVE MADE A GOOD LIVING FROM FARMING, BUT HAVE SEEN SIGNS THAT THE LAND CANNOT BE FARMED FOREVER IN THE MANNER THAT WE ARE USED TO. PARTS OF THE RANCH ARE NOW TOO WET TO MANAGE AS FARM LANDS. THE LEVEES HAVE BECOME INCREASINGLY TALL AND EXPENSIVE TO MAINTAIN. THE RISK OF A FLOODED ISLAND FROM A LEVEE BREACH INCREASES EVERY YEAR. I THINK THAT THE ENVIRONMENTAL IMPACT REPORT IS CORRECT IN INDICATING THAT THE RESERVOIR AND WETLAND CONDITIONS CREATED BY THE PROJECT WOULD ARREST SUBSIDENCE AND INSURE A ;LONG AND USEFUL LIFE FOR THE LAND.

I THINK IF THE FOUR ISLANDS IN THE PROJECT ARE CONVERTED TO INTENSIVE FARMING THAT THEY WILL PROBABLY NOT FARM AS MUCH ASPARAGUS AS THEY ARE PRESENTLY SHOWING, BUT WILL RATHER GO TO SPECIALTY CROPS WHICH ARE CAPITAL INTENSIVE RATHER THAN LABOR INTENSIVE.

IT IS NOT EASY FOR ME TO SEE THE LAND THAT MY FAMILY HAS FARMED FOR SO MANY YEARS GO OUT OF AGRICULTURE PRODUCTION, BUT THE REALITY OF IT IS THAT THE COMBINATION OF WATER STORAGE AND WETLANDS CREATION IS AN ECONOMICALLY FEASIBLE WAY OF RETURNING THE LAND BACK TO A MORE NATURAL STATE BEFORE MOTHER NATURE HERSELF RECLAIMS THE ISLANDS WITHOUT ECONOMIC OR ENVIRONMENTAL BENEFIT.

THANK YOU FOR CONSIDERING THESE COMMENTS.

SINCERELY.

KYSER SHIMASAKI

cont'd

E6-1

## **Kyser Shimasaki**

**E6-1.** The commenter's observations about soil subsidence and levee funding on Bacon Island are consistent with the discussions in the 1995 DEIR/EIS (see Chapters 2, "Delta Wetlands Project Alternatives"; 3D, "Flood Control"; and 3I, "Land Use and Agriculture" of the 1995 DEIR/EIS and Volume 1 of the FEIS). Because this letter does not specifically comment on the environmental analysis in the 1995 DEIR/EIS, no response is required.

E7-1

November 29, 1995

To:

Mr. Jim Sutton

State Water Resources and Control Board

P.O. Box 2000

Sacramento, CA 95812-2000

From:

Earl Cooley, Manager

Medford Island Habitat Conservation Area

#1 Medford Island Stockton, CA 95219

Re:

Comments to draft E.I.R. and H.M.P. for Delta Wetlands Project

#### Dear Mr. Sutton:

My first concern is that, as I understand it, over 1400 acres of wildlife habitat will be closed to all waterfowl hunting. Typically, large "closed zones" concentrate migratory waterfowl in such densities that avian botulism and cholera can spread to thousands of birds very rapidly. Even the managers of State and Federal refuges have enough flexibility to allow hunters into "closed zones" at times to distribute birds to minimize disease outbreaks.

Secondly, areas around such "closed zones" may receive intensive use by feeding waterfowl at night, but not during shooting hours. While this appears to be in the best interests of the resource, consider the many landowners who flood their harvested grain fields for waterfowl hunting. Many will convert to more profitable truck crops with little habitat value when hunter success decreases because of the "closed zone" requirement.

Another option for consideration is consolidation of the proposed "closed zones" and free-roam areas into low-impact management units which could allow for the rotation of closure area as necessary so birds are not confined to one specific area after it has been feed out or disease outbreaks have occurred.

"In kind" replacement has been the conceptual objective of mitigation. The closure of hunting on 1400 acres of wetlands in the central Delta will not maintain outside hunting property values, current flyway patterns or minimize waterfowl disease mortalities. However, the wise use of low impact zones with minimal hunter densities could help address the aforementioned concerns.

Sincerely,

E.W. Cooley

EWC/jyt

#### Earl W. Cooley (Medford Island Habitat Conservation Area)

E7-1. The commenter is concerned that establishing areas closed to hunting would increase the risk of outbreaks of botulism and avian cholera and would change wildlife use patterns on other islands in the Delta. The effects of hunting on waterfowl distribution relative to the potential for disease outbreaks are described under Impact H-17 in Chapter 3H, "Wildlife". The potential change in waterfowl use patterns on other Delta islands is addressed by Impact H-21. The establishment of closed hunting zones on the habitat islands is described on pages 3H-19 and 3H-20 of the 1995 DEIR/EIS (see pages 3H-21 and 3H-22 of FEIS Volume 1). As described in the HMP (Appendix G3), the HMAC may approve future changes to the management of the habitat islands, including the hunting program, but the monitoring data would have to justify such changes before the changes could be approved. Hunting or hazing in zones closed to hunting is not precluded as a potential management action to control waterfowl disease outbreaks, but such a change in habitat island management would have to be justified. See also response to Comment D7-3.

December 10, 1995

State Water Resources Control Board
Division of Water Rights
Attn: Jim Canaday
P.O. Box 2000
Sacramento, Ca. 95812-2000

Dear Mr. Canaday,

My wife and I attended the public hearing on the Delta Wetlands Project October 11. We enjoyed talking to you, and appreciate your sending us a full copy of the Draft EIR/EIS.

We passed it around to interested neighbors on Bradford Island, and held a study session on November 11. As the nearest island to Webb Tract, we all had our concerns about the effect turning Webb into a reservoir would have on our property and lifestyle.

I was asked to submit our concerns and comments to you, for inclusion and response in the final EIR/EIS.

Financial Arrangements for the Jersey, Bradford, Webb
 Tract Ferry

Page 2 of chapter 3-L states that the ferry is currently funded in equal part by Contra Costa County, Webb Tract Reclamation District, and Bradford Reclamation District.

However, Contra Costa County no longer provides funds for the

ferry, according to Mike Walford, Director of Public Works.

The June, 1995 ferry budget shows a County contribution of \$16,000, while the reclamation districts paid \$98,400.

The figures in the EIR/EIS on ferry usage are from 1991-92, and are lower than current usage. The report also estimates 40 trips daily for the ferry, which is impossible during the normal nine hour day.

Both the ferry and the road are currently underfunded and in need of maintenance. Any decline in ferry service would make farming, working, or living on Bradford Island untenable.

We would like written assurance in the EIR/EIS that Webb will continue to fund the ferry at least its current rate, and we would like the facts about ferry service updated and corrected. We would also like to have a maintenance agreement for the Jersey Island Road in place.

## 2. Boating Traffic and Safety

Webb Tract is bordered by three major boating navigation channels; False River, Fisherman's Cut, and the San Joaquin River. Though the San Joaquin is too broad to be effected by the Delta Wetlands project, the increased traffic and (especially) the proliferation of restricted speed zones on the other two channels would be have very significant negative impact on waterway traffic and safety.

Chapter 3L assumes all boating traffic in the region to be recreational, but this is not the case. Fisherman's Cut

E8-1 cont'd

and False River are commonly used to move large barges, tugs, cranes and other equipment. Dutra Construction Company, Mid-Cal Construction and others use these channels almost daily. Residents of Bradford also commute to work, shop, etc. using these channels as their "freeway". The Coast Guard and Sheriff's Water Patrol of Contra Costa and San Joaquin Counties use these waterways as the fastest route from the San Joaquin and Sacramento Rivers to Franks' Tract, Bethel Island, and Discovery Bay.

E8-2 cont'd

None of these activities could continue if the six proposed recreational facilities on these waterways required 5 mph zones. We believe the EIR/EIS needs to address the professional, residential, and commercial boating traffic problems.

Perhaps some of these recreational facilities should be built with wake barriers, or seawalls, so that the speed zones would not be necessary. Perhaps they should be relocated. Definitely, more thought should be given to this problem.

#### 3. Meteorological Changes

The report mentions an increase in tule fog conditions, and cites this as a negative impact on traffic across Bouldin Island. No mention is made, nor research cited, about the increase in fog around the other project islands, nor of its effects on marine navigation.

Wind and wave action complement each other. As the open

expanse of water increases, so does the ferocity of both. Sailors call this phenomena "Fetch". Some of us fear that flooding the islands will increase the fetch, resulting in much more turbulence on adjacent channels. This could make navigation more dangerous, and erode the levees of adjacent islands.

E8-3 cont'd

We would like more information on both fetch and fog included in the final EIR/EIS.

#### 4. Groundwater Seepage; Groundwater Quality

Figure 3D-3 shows the location of piezometers to monitor seepage that changes the groundwater table on islands adjacent to the reservoir islands. Delta Wetlands proposes to install and begin monitoring these piezometers one year before the first filling of the islands.

Because groundwater levels change annually as well as seasonally, we would like them installed and monitored sooner, so an accurate baseline could be established.

Unusual fluctuations in the water table could disturb contaminants and pollute well water. It would be inexpensive to test well water on islands near the project before starting, and periodically thereafter. This would reassure residents that their water was safe.

#### 5. Escrow Account

In our conversation October 12, you mentioned the possibility of requiring an escrow account to be set aside to insure that funds would be available if something went wrong.

E8-4

We think this is a good idea, and would like to see some particulars included in the EIR/EIS.

We are not opposed to this project, just concerned. When your neighbor says he plans to put 300 elephants in his back yard, you have to ask where all the elephant crap will go.

Thank you for letting us ask these questions.

Sincerely,

Paul and Liza Allen 4 Bradford Island Stockton, Ca. 95219 510/684-9328

#### Paul and Liza Allen

**E8-1.** The information on the funding of the Delta Ferry Authority has been updated based on input from Contra Costa County. See response to Comment C13-6 above.

The reference to the number of "trips" in Chapter 3L refers to the number of passenger trips on the ferry in a day, not to the number of trips that the ferry took in a day. The text of the second paragraph under "Webb Tract" on page 3L-2 of the 1995 DEIR/EIS (page 3L-3 of the FEIS) has been revised to update the data on ferry use, correct the reference to daily average passenger use, and update the information on funding of the Delta Ferry Authority as follows:

The Delta Ferry Authority operates the Jersey-Bradford-Webb ferry each hour from 8:00 a.m. to 5:00 p.m., Monday through Friday during fall, winter, and spring, and Friday through Tuesday during summer. During fiscal year 1991-1992 1998–1999, the total number of passengers using the ferry was 10,44021,938 (California Office of the Controller 19932000). Based on this figure, average use for that year is estimated to have been approximately 4085 passenger trips per day. The ferry system is funded through a resolution involving Contra Costa County, Webb Tract Reclamation District, and the Bradford Island Reclamation District, with each participant bearing one-third of the cost. The ferry system is funded through the Delta Ferry Authority. The Delta Ferry Authority is composed of Contra Costa County, Webb Tract Reclamation District, and Bradford Reclamation District. Each reclamation district provides approximately \$50,000 per year in funding for the ferry service (Heringer pers. comm.), while Contra Costa County collects approximately \$15,000 per year in local funds to support the ferry service (Cutler pers. comm.). The Delta Ferry Authority collects these monies to fund operation of the ferry.

The following citations have been added to Chapter 3L:

- Cutler, Jim. Assistant director, Comprehensive Planning. Contra Costa

  County Community Development Department, Martinez, CA.

  December 21, 1995—letter to Jim Monroe, U.S. Army Corps of Engineers, commenting on the 1995 Draft Environmental Impact Report/Environmental Impact Statement for the Delta Wetlands Project.
- Heringer, Ralph. Operations. Delta Ferry Authority (Bouldin Farming Company), Contra Costa County, CA. February 27, 1996—telephone conversation with Amanda Brodie of Jones & Stokes.
- <u>California Office of the Controller. 2000. Financial transactions concerning</u>
  <u>transit operators and non-transit claimants under the Transportation</u>
  <u>Development Act. (Annual Report 1998–1999.) Sacramento, CA.</u>

Delta Wetlands and Bradford Island have a mutual need for the use of the ferry system, and funding for this service would not be affected by implementation of the Delta Wetlands Project. The projected traffic volumes for recreational use of the Delta Wetlands Project islands indicate that the amount of ferry service to Webb Tract would be greater after project implementation than it is now. The text in Chapter 3E has been updated to reflect the traffic analysis. See responses to Comments C13-6 and C16-1. The commenter's concerns about the maintenance of Jersey Island Road are addressed in response to comment letter C16 from Reclamation District No. 830 and in the section entitled "Roadway Safety and Maintenance" in Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".

**E8-2.** Boating traffic and safety were discussed generally on page 3L-3 in Chapter 3L, "Traffic and Navigation", of the 1995 DEIR/EIS. The commenter notes that Delta channels are used for commercial activities and transit in addition to recreation. To reflect this information, the following text has been added to the end of the first paragraph under "Waterway Traffic and Safety" (see page 3L-4 in FEIS Volume 1).

Boating traffic in the Delta also includes commercial, residential, and emergency service traffic. Fisherman's Cut and False River, for example, are used to transport large barges, tugs, cranes, and other types of equipment. Bradford Island residents use the channels as a "freeway" to commute to work and to shopping locations. Police and fire services also use the waterways for emergency response to various locations in the Delta.

Increased boat traffic and speed restrictions under the Delta Wetlands Project would affect residential and commercial traffic as well as recreation traffic. The increase in boat traffic and congestion is considered a significant and unavoidable impact, as described under Impact L-7 in the 1995 DEIR/EIS. See also Master Response 5, "Mitigation of Environmental Effects Related to Use of Recreation Facilities".

E8-3. The commenter is concerned about the effects of the proposed water storage operations on fog and wind fetch conditions in channels adjacent to the Delta Wetlands reservoir islands. Fog conditions in the channel waters outside the Delta Wetlands water storage areas or in other parts of the Delta would not be affected by the increased fog on the Delta Wetlands Project islands. As described in the 1995 DEIR/EIS, storage of water on the Delta Wetlands reservoir islands could create localized fog conditions on those islands. Fog can settle low on bodies of water when there is little or no wind, and these conditions can create a dense fog over that body of water. Heavy fog over Delta channels is an existing condition, and because winds are characteristically calm on days of heavy fog, fog on the Delta Wetlands Project islands would not substantially affect conditions in the adjacent channels. Under Alternative 3, SR 12 may be subject to heavier fog than under existing conditions where it passes through the proposed water storage area; therefore, fog conditions and traffic hazards on SR 12 on Bouldin Island are discussed on page 3E-13 under "Highway Safety" in Chapter 3E, "Utilities and Highways", of the 1995 DEIR/EIS (FEIS page 3E-14). Chapter 3E has been revised to include a discussion of fog conditions

on the waterways around the proposed project islands. The following text has been added as the last paragraph under "Waterway Traffic and Safety" on page 3L-4 of the 1995 DEIR/EIS (pages 3L-4 and 3L-5 of FEIS Volume 1):

Fog is common during the winter months throughout the Delta. Fog may sometimes settle low on bodies of water (i.e., Delta channels) when there is little or no wind, creating a dense fog condition in that localized area. Marine navigation in the Delta can be difficult during periods of dense fog. However, according to the U.S. Coast Guard, the level of boating activity and the need for search and rescue efforts during the winter months is relatively low compared with the need in summer months (Undieme pers. comm.). Boaters who use the Delta in the winter are generally experienced in boating, carry navigational equipment, and are familiar with marine navigation in foggy weather (Undieme pers. comm.).

Also, the following text has been added under "Navigation" on page 3 L-11 of the 1995 DEIR/EIS (page 3L-13 of the FEIS):

Water storage on the Delta Wetlands reservoir islands could increase fog on the project islands during the winter months but would not substantially affect existing fog conditions in the adjacent channel waters or in other parts of the Delta (Bohnak pers. comm.). Therefore, increased fog on the Delta Wetlands reservoir islands would not affect boater navigation in adjacent channels.

The following citations have been added to Chapter 3L:

Bohnak, Steve. Sargeant. San Joaquin County Sheriff's Department, Boating and Marine Safety, San Joaquin County, CA. February 29, 1996—telephone conversation with Amanda Brodie of Jones & Stokes.

<u>Undieme, Daniel. Petty Officer. U.S. Coast Guard, Rio Vista Station, Stockton, CA. February 29, 1996—telephone conversation with Amanda Brodie of Jones & Stokes.</u>

Waves and fetch in the adjacent channels would remain the same under the Delta Wetlands Project as under existing conditions. Fetch is the distance traveled by waves in open water from their point of origin to the point where they break. As the fetch increases, the waves produced become larger. The fetch across the Delta Wetlands reservoir islands under extreme wind conditions would produce substantial waves on the reservoir islands (see Appendix H of the 2000 REIR/EIS). However, waves produced on the Delta Wetlands islands would break at the islands' perimeter levees. Therefore, adjacent channels would not be affected by waves generated by wind on the Delta Wetlands islands, and the exterior slopes of adjacent island levees would not experience erosional effects from waves generated across the Delta Wetlands reservoir islands.

**E8-4.** Delta Wetlands continuously monitored groundwater levels on several Delta islands for more than 5 years. See Appendix H, "Levee Stability and Seepage Technical Report", of the 2000 REIR/EIS for a more detailed analysis of the seepage monitoring and control system.

The Delta Wetlands Project would not cause unusual fluctuations in groundwater levels that could affect water quality in wells. Delta Wetlands would be required to monitor and mitigate substantial changes in groundwater levels attributable to the Delta Wetlands reservoir island operations. Additionally, well owners are currently required to regularly test the well water that they use for domestic consumption, so additional testing by Delta Wetlands would not be necessary.

**E8-5.** Provision of an escrow account or liability line of credit is outside the scope of the NEPA and CEQA analysis.

Delta Wetlands and EBMUD submitted a protest dismissal agreement to the SWRCB during the water right hearing. The agreement requires that Delta Wetlands maintain escrow accounts to fund annual operating expenses and corrective actions as necessary to address problems attributable to Delta Wetlands reservoir operations.

Date 12/18/95 122 Castle Crest Rd. Walnut Creek, CA. 94595

STATE WATER RESOURCES CONTROL BOARD DIVISION OF WATER RIGHTS ATTENTION: JIM SUTTON P. O. Box 2000 SACRAMENTO, CA 95812-2000

Re: Environmental Impact Report/Environmental Statement for The Delta Wetlands Project: Water Right Applications 29061, 29062, 29063, 29066, and 30267, 30268, 30269, 30270: My Comments on the EIR/EIS for the DELTA WETLANDS PROJECT, WATER RIGHT APPLICATIONS

My comments will be directed toward the wildlife and habitat of all four Delta Islands affected by this project. My expertise primarily stems from some fifteen years of wildlife management on Webb Track Island. I have an additional thirty plus years of recreational experience on three of the four islands in this project as well as the general Delta Region.

The fertility and diverse habitat complete with riparian "fresh" water rights are the key to developing the property to its "highest and best use". The "highest and best use" is maximizing the islands for wildlife via mitigation banking in conjunction with compatible agriculture. The Delta Wetlands Project can facilitate this goal within the Delta region and mitigate the adverse impacts of the project to no net loss. However this will only occur with some significant changes to the projects proposed "ALTERNATIVES 1 AND 2", mitigation measures proposed for Bouldin Island and Holland Tract Island.

#### Comments

1. The EIR does not adequately place potential nesting values on Delta Wetlands Project's habitat islands, found in "ALTERNATIVES 1 and 2". This could be easily rectified in "ALTERNATIVES 1 and 2" by including more aggressive mitigation measures for the nesting needs and habitat values required by the Mallard, Gadwall, Teal, Wood Duck, Short-eard Owl, Marsh Hawk, and Ringneck Pheasant. Establishing the following habitat and nesting needs mosaics for the above species will also more then provide for other Delta indigenous species. Implementing the following recommendations Delta Wetlands Project could be an exemplary model for future Delta mitigation projects by:

a. Increasing "brood / pair water". The total amount of these waters should be at least 10% of the total land mass of each of the habitat islands.

b. The brood / pair waters should be meandering and interconnecting, with sufficient emergent plant growth as to reduce predation of broods.

E9-1

- c. Seasonally drying of the brood waters will increase the growth of insects needed for brood food sources. The needed hydrology for the seasonal drying of ponds will require sophisticated water management systems in order to accommodate adjacent required winter flooding for the Pacific Flyway migrations of waterfowl and related species.
- e. Corn / wheat acreage on the two habitat islands should only exist if irrigation can be provided in other then the traditional use of spud ditches. Spud ditches turn croplands into killing fields for ground nesting birds' fledglings and some young mammals. Unless spud ditches can be redesigned to allow fledglings to escape the spud ditches fatal entrapments. Irrigation should be provided by other means, such as the use of shallow walled "V" ditching.
- e. On going habitat management of the two habitat islands is imperative. Pro-active management of habitat is necessary in order to implement and maintain maximized wildlife diversities, density per acre in conjunction with increased brood survival. Theses are needed for true mitigation of this project.
- 2. As part of the mitigation measures, annual research funding is to be provided by the project. I recommend the following areas for research:
- a. Research and written findings of land nesting species their diversity, their density, and most importantly the nesting survival rate should be conducted to determine validity of habitat management successes. This research should occur for the first 3 to 5 years of the project. The nesting studies conducted by the Dept. of Fish & Game and the California Waterfowl Association at Grizzly Island Wildlife Area, should be used as a minimum base line when considering the nesting value and potential of the four Project Islands, with emphasis placed on the two habitat islands.
- b. Research and written findings of carrying capacity and use of Pacific Flyway migrating waterfowl should also be completed to determine validity of habitat management successes, during the first three to five years of the project.
- c. Research and written findings of other food values incidental to agricultural crops such as corn and wheat (i.e root fibers, grasses, insects etc.) need to be identified, and valued as to each species in their overall wintering needs as compared to native none crop habitat such as water grass and smartweed etc. This research should be conducted by collecting waterfowl craw samples to empirically determine the actual foods being consumed by waterfowl during their use of DW Project Islands. The research should be conducted during the first three years of project operations. These studies are necessary to bring about resolution concerning effective waterfowl food values of DW Project mitigation measures.
- 3. The continued planting of corn and wheat crops, should stop as soon as managed native habitat can biologically demonstrate the capability of providing appropriate biota carrying capacity for Delta indigenous and migratory species.

E9-1 cont'd

E9-2

E9-3

4. The Highway 12 corridor running through Bouldin Island should be bordered longitudinally by trees and or vegetation. This barrier should be of sufficient height as to provide a visual and to some degree sound barrier between highway and the wetland / wildlife habitat. This barrier is essential to the maximization of the valuable mitigation acreage of Bouldin Island.

E9-4

5. All project islands will have to be carefully monitored for out breaks of wildlife diseases such as cholera and botulism, which can have devastating impacts on wildlife.

E9-5

6. Mitigation for wildlife values lost by the projects reservior islands and the maximization of potential wildlife values of the two habitat islands within the Delta Wetland project should be the primary focus of this project's mitigation efforts. While threatened and endangered species are of great concern, they should not be the preoccupation or even the primary focus of the overall wildlife potential of these two Delta islands.

E9-6

7. The overall management of the Delta Wetland habitat islands must be flexible in order to respond rapidly to unexpected occurrence both in nature or man made impacts.

E9-7

8. Waterfowling recreational opportunities of this project are significant. The key to any truly "Quality" waterfowling is management. The proposed imposition of "Closed Zones" is counterproductive to quality wetland management and quality waterfowling recreation. Quality waterfowling is self limiting by its very nature. The impact of quality hunting is only an incidental intrusion to wetlands. Management of hunter density and quality wetlands habitat is the true measure of the wetlands carrying capacity, species diversity, density and yield of the biota in question. Closed zones will add to potential spread of wildlife diseases due to unnatural concentration of wildlife. Closed zones will detract from the Delta's overall waterfowl distribution and concentrations, thus reducing current waterfowling recreational opportunities as well as having a negative effect on neighbors.

E9-8

#### PROJECTS BENEFITS

1. Given the implementation of above suggestion, in conjunction with proposed project mitigation habitat plan, other Delta indigenous species as well as a potentially exemplary wetlands management program not presently found in the Delta.

E9-9

2. In the winter months, having an increased amount of ponding available could relieve the current cholera outbreak problems. By having two Project Islands watered, and two wetland managed islands the large concentrations of birds competing for limited amounts of spaces and water could be avoided.

- 3. This project would provide additional recreational and hunting opportunities within the Delta area.
- 4. Increase the availability of water for consumptive users.
- 5. Preventing the suburbanization of the Project Delta Islands.

E9-9

cont'd

- 6. Decrease island subsidence.
- 7. Water diversions from the Delta-San Francisco Bay estuaries should occur under the projects proposed "ALTERNATIVES 1 and 2" and not under projects "ALTERNATIVE 3".
- 8. The project will generate needed research funds and important findings as to the effectiveness of the mitigation measures of this project as well as future Delta mitigation projects.

#### CLOSING COMMENTS

This project's EIR has clearly been a monumental effort and has been years in the development. The Delta Wetlands Project has the opportunity to provide an exemplary model for both nesting as well as wintering habitat for Delta indigenous species. By implementing the two Habitat Island's Wetland Plan, the diversity, breadth and distribution of varying ecological systems and their extremely important edge zones, will be valued as a ecological gestalt interrelating to adjacent environmental demands.

Clearly this project will significantly change the historic land uses of these Delta Islands. This change will be from agriculture with significant wildlife values to seasonally water storage with wildlife values and two potentially exemplary wetlands management programs. This project should conduct and publish results of habitat planning as well as the result of any studies completed regarding wildlife and wetland management. The Delta Wetland mitigation results will greatly benefit other potential Delta wetland mitigation projects in the future.

Respectfully submitted,

arglo

Peter Margiotta

Concerned about the Delta

CC: Gayle Bishop, Supervisor Contra Costa County Board of Supervisors

Page 4 of 4

#### **Peter Margiotta**

**E9-1.** The commenter states that the HMP does not include adequate nesting habitat and value on the habitat islands for waterfowl and other species. The commenter specifically recommends that the HMP address nesting needs and habitat values for the mallard, gadwall, teal, wood duck, short-eared owl, marsh hawk, and ringneck pheasant.

Project impacts on waterfowl and nesting bird species are described in Chapter 3H, "Wildlife", of the 1995 DEIR/EIS (see pages 3H-21 to 3H-28 [pages 3H-23 to 3H-30 of FEIS Volume 1). As described in the 1995 DEIR/EIS, the HMP would increase breeding habitat for a substantial number of species, including waterfowl and other nesting birds. In DFG's species evaluation of the proposed Delta Wetlands Project (Comment B6-71), the department found that the Delta Wetlands Project would fully mitigate effects on mallard, gadwall, teal, wood duck, and short-eared owl and would provide ancillary benefits to the short-eared owl and wood duck. DFG notes that effects on the ring-necked pheasant would occur but would be less than significant. This finding is consistent with the 1995 DEIR/EIS, which acknowledges that there would be a net loss in acreage of upland habitat for ringneck pheasant. However, implementation of the HMP would partially offset these impacts by creating fewer, but higher quality, upland habitats.

The commenter's recommended changes to the HMP are not required to offset impacts of the proposed Delta Wetlands Project. Development of waterfowl breeding habitat is described on pages 5–6 and in Table 2 of the HMP (Appendix G3) and includes management of brood ponds and nesting cover. As described in Table 2 of the HMP (Appendix G3), Delta Wetlands is committed to modifying spud ditches to reduce the likelihood of duckling mortality caused by entrapment in ditches (see response to Comment D7-2). Also, as noted in response to Comment A5-8, the HMP can be amended to change habitat types and management practices in future years if monitoring data indicate that such changes would continue to meet the goals of the HMP.

E9-2. The Delta Wetlands environmental research fund would contribute to research in the Delta. As described on page 2-9 of the 1995 DEIR/EIS (page 2-11 of FEIS Volume 1), the allocation of the fund would be under the direction of Delta Wetlands and a research committee. The committee would be composed of representatives of DFG, USFWS, NMFS, the SWRCB, Delta Wetlands, fishery-oriented and waterfowl-oriented organizations, and one general environmental organization. The commenter's suggestions for research projects have been noted and would be considered by the research committee during project implementation. It should be noted, however, that the environmental research fund would not be used to monitor HMP success or to fulfill project permit or operation requirements (see response to Comment C13-19). Mitigation monitoring is required as part of the project to determine whether mitigation habitats are providing the wildlife values intended by the HMP (see Appendix G3, pages 21-22 and Table 26).

- **E9-3.** Changes in future management of the habitat islands, including cropping patterns, may be permitted with justification as described under "Management Monitoring Programs and Performance Standards" on pages 21–22 of the HMP (Appendix G3).
- **E9-4.** Although some riparian vegetation would be established adjacent to SR 12, the HMP design team did not consider creation of a corridor of riparian vegetation along the entire length of the highway on Bouldin Island because such a corridor may impede movement of waterfowl and other wildlife between habitats north and south of the highway.
- **E9-5.** The Delta Wetlands Project islands would be monitored for outbreaks of botulism or other waterfowl diseases, as described on page 3H-26 of the 1995 DEIR/EIS (page 3H-28 of FEIS Volume 1). See also response to Comment D7-3.
- **E9-6.** Analysis and mitigation of project effects on federally listed and state-listed species are required by the federal and state Endangered Species Acts. The primary goals for habitat island management are to offset significant project impacts on state-listed threatened species (no federally listed species would be affected by the project), wintering waterfowl foraging habitat, and jurisdictional wetlands (see page 3H-19 of the 1995 DEIR/EIS [page 3H-21 of FEIS Volume 1]). As described in Chapter 3H, implementing the HMP would offset the loss of wildlife values caused by reservoir operations.
- **E9-7.** Successful implementation of the HMP requires flexibility in management of the habitat islands. Protocols for allowing changes in management under specified conditions are described in the HMP (Appendix G3) on pages 11–16 and pages 21–22.
- **E9-8.** The effects of areas closed to hunting on botulism and avian cholera outbreaks and on neighboring islands are addressed in responses to Comments D7-3 and E7-1.
- **E9-9.** The Delta Wetlands Project would result in beneficial impacts as stated by the commenter and identified in the 1995 DEIR/EIS.

Robert C. & Jean M. Benson 10331 Norwich Avenue Cupertino, CA 95014 (408)253-0388

December 18, 1995

State Water Resources Control Board Division of Water Rights Attention: Jim Sutton P.O. Box 2000 Sacramento, CA 95812-2000

U.S. Army Corps of Engineers Regulatory Branch Attention: Jim Monroe 1325 J Street, Room 1444 Sacramento, CA 95814-2922

RE: Comments on Draft Environmental Impact Report and Environmental Impact Statement For the Delta Wetlands Project.

#### Gentlemen:

Robert C or Jean M. Benson (hereinafter referred to as Benson) filed its Protest to Applications 29061, 29062, 29063, and 29066 of Bedford Properties to appropriate from various rivers, sloughs, cuts, and channels of the San Joaquin River Delta at points on Bouldin Island, Webb Island, Holland Island, and Bacon Island.

Benson is a Landowner on Bradford Island engaged in agriculture.

Bradford Island is located immediately west of Webb Tract (one of the reservoir islands within the Project) across Fisherman's Cut. On the north and west for Bradford Island is the San Joaquin River, the main ship channel to the Port of Stockton.

Access to Bradford Island is only by boat. R.D. #2059, in conjuction with Contra Costa County and Reclamation District No. 2026 (Webb Tract), operates the Delta Ferry Authority which provides ferry service from Jersey Point to Bradford Island and Webb Tract.

Benson filed Protests to the Applications of Bedford Properties, now Delta Wetlands, for the operation of the Project as described in the Draft Environmental Impact Report and Environmental Impact Statement for the Delta Wetlands Project, dated September 11, 1995 (herein referred to as the "Report and Statement").

PAGE 1 OF 6

Benson makes the following comments and expresses the following concerns to the Report and Statement as it relates to Bradford Island:

#### I. BOAT TRAFFIC

In the Summary (page S-3), Project Alternative describe Alternatives 1 and 2 as including the following:

"Portions of the habitat islands and the reservoir islands would support recreational activities. Up to 38 private recreation facilities may be located on the perimeter levees of all four islands. These recreation facilities, with up to 40 bedrooms each, will include boat docks in adjacent channels, with 30 boat berths, and boat docks on the island interiors, with up to 36 boat berths, that may be operated year round."

In reviewing the impact of such a project, your attention is drawn to Chapter 3L, and in particular to Impact L-7 on page 3L-12:

"Impact L-7: Increase in Boat Traffic and Congestion on Delta Waterways during DW Project Operation. Implementation of Alternative 1 would result in the addition of 1,116 boat trips on a peak summer day to waterways in the DW project vicinity. Based on estimated recreation use it is estimated that boat trips would increase by approximately 5% over existing conditions. Also, construction of the recreation facilities would restrict boat speeds on up to approximately 8 miles of Delta waterways. Restricted speeds, combined with boats moving into and out of waterways at the DW facilities, would create boat congestion on days of heavy recreational use. Therefore, this impact is considered significant and unavoidable." (emphasis added)

"Mitigation. No mitigation is available to reduce this impact.

This Report accepts the fact that the addition of the recreational facilities described in the Summary above, and that no mitigation is available to reduce this impact.

Reclamation Districts have long contended that one of the greatest impacts on its levees is boat traffic. As the number of boats increase, and the size and speed of those boats also increase, the surrounding levees are negatively impacted.

E10-1

Reclamation Districts find that boat traffic in the channels surrounding their levees impacts the Districts in the following ways:

PAGE 2 OF 6

- 1. The wave wash from boat wakes cause the levees to erode and the levee riprap to slip into the water leaving the levees exposed to further erosion.
- 2. The cost of repairing levees and replacing levee material is continually increasing when monetary resources are declining.
- 3. Reclamation Districts are restricted in making repairs to its levees without providing substantial wildlife mitigation and habitat at very costly expenditures to the District.
- 4. Some levees are constructed of peat and/or sand material and are therefore very fragile. Increased boat traffic is particularly harmful to such levees.

Bradford Reclamation District No. 2059 is one of those districts which have fragile levees and very limited funds with which to maintain its levees. To permit the additional recreational uses described in the Summary and concluding that it will have a significant but unavoidable impact is unacceptable.

Who is going to assist R.D. #2059 in the added costs of maintaining its levees, both in replacing the washed-away materials and the significant financial impact to the District in meeting all of the habitat mitigation requirements placed upon it in order to restore the eroded levees?

Benson respectfully suggests that this Report and Statement does not adequately address the impact of increased boat traffic on the levees of neighboring islands as any impact on the Reclamation District will impact Benson's cost by way of increased assessments.

#### II. SEEPAGE

It must be recognized that if Webb Tract is flooded, it will result in increased seepage on adjoining islands, and in particular on Bradford Island. This is a fact, for in 1980 when Webb Tract flooded, that very thing occurred on Bradford Island.

This is recognized in the Report and Statement in Chapter 3D on page 3D-13, where it is stated:

"An engineering model (SEEP) was used by HLA (1989) to analyze seepage potential of water storage on Webb Tract across Fishermans Cut to Bradford Island. This location was identified as being particularly sensitive because of the short seepage distance across Fishermans Cut. Fixed hydraulic levels were tested under a range of permeability

PAGE 3 OF 6

E10-1 cont'd conditions of soil materials to determine the effect of flooding and exposed borrow pit excavation. The model indicated that both hydraulic heads and seepage levels in sands on Bradford Island would increase as a result of flooding of Webb Tract. This analysis assumed a water storage elevation of +4 feet based on a previous project description; however, the currently proposed water storage level of +6 feet would not alter the results of the study (Tillis pers. comm.). Seepage levels would still increase on Bradford Island as a result of the proposed +6 feet water storage under Alternative 1." (emphasis added)

So the question is not "if there will be seepage" but rather how much seepage and what can be done to protect Bradford Island.

This Report and statement suggests that the appropriate mitigation efforts is that of installing a Seepage Interceptor Will System Along the Western side of Webb Tract and piezometers along the eastern side of Bradford Island. There is no established basis for determining that such a mitigation effort will be adequate to prevent seepage onto Bradford Island.

The Report and Statement also provides on page 3D-10 other potential mitigation efforts for controlling seepage including (1) existing levees on neighboring islands; (2) constructing toe berms with an internal drainage system on neighboring islands; (3) lowering the design pool elevation on the DW reservoir islands; (4) developing wetland easements adjacent to levees on neighboring islands; (5) purchasing farmlands affected by increased seepage; (6) constructing a combination of seep and interior ditches and increasing pumping rates; (7) installing clay blankets; and (8) installing impervious cutoff walls through project island levees.

The fact that so many different and varied alternatives are suggested as a means of mitigating the effect of seepage is an indication that they recognize that there is no simple answer to the problem.

Seepage will have a major impact on Bradford Island. Too much water will not only weaken the District's levees and substantially increase the District's expenses required to maintain and operate its drainage facilities, but will also be detrimental to the agricultural crops and livestock on Bradford Island.

R.D. #2059 knows that if Webb Tract is flooded that Bradford Island will find itself faced with an unsurmountable burden - the burden of establishing proof that the seepage on Bradford Island is caused by the flooding of Webb Tract.

Engineers will tell you that water seepage from point A to point B is not the same as following a pipe between two points.

E10-2

E10-3

E10-4

E10-5

Water and the resulting hydraulic head can translate through many layers and strata of earth and come up some distance from the point from which it entered. Seepage resulting from the flooding of Webb Tract will not only affect the land on Bradford Island immediately adjacent to Fishermans Cut, but could also affect land anywhere within Bradford Island. As a result it would be nearly impossible to solve the problem of seepage on Bradford Island with interceptor wells, relief wells, toe berms, clay blankets, or impervious cutoff walls through the levees. Many of the proposed mitigation efforts would require the construction or installation of mitigating devices to or near the levees of R.D. #2059 or the taking of private property on Bradford Island.

As a landowner any additional costs to the District will be passed on to us by way of assessments. Also after the 1980 Webb Tract flooding, Bensons property did have seepage problems from Webb Tract.

In conclusion, Benson does not want and should not be put in the position of having to prove that increased seepage is in fact coming from the flooding of Webb Tract in order to protect their property rights. The Project should not be approved without substantial and proven mitigation measures that will provide adequate protection to Bradford Island from seepage.

#### III. INCREASE SALINITY

The Report and Statement acknowledges that the Project will result in the increase of salinity at Jersey Point.

The life and financial success of Bradford Island is based upon the growth of crops, hay and pasture supporting livestock and each of these require a supply of good quality of Water. Increases of salinity in the water surrounding Bradford Island will have a negative impact upon those items.

Bradford Island sits precariously between the salt water of the Suisun Bay on the west and the fresh water of the Sacramento-San Joaquin Delta on the east. It is recognized that if a substantial amount of fresh water is taken out of the channels upstream from Bradford Island - such as Webb Tract and Bacon Island - the slat water on the western side of Bradford Island will move further and further upstream.

Any operation of the Project must contain foolproof measures to protect the supply of good quality water for Bradford Island.

Benson depends on Agriculture on Bradford Island and any increase in salinity will affect income.

E10-5 cont'd

E10-6

E10-7

PAGE 5 OF 6

#### III. CONCLUSION

The Report and Statement not only do not adequately address the impact of this Project on Bradford Island, but it is entirely silent on how problems are to be resolved. There is no foolproof method of guaranteeing that Benson will have any recourse to protect ourselves without protracted and costly litigation, during which the adverse effects will continue unabated. The Report and Statement should include a definitive dispute resolution process that will protect the adjoining landowners pending the outcome of that process.

E10-8

The burden of proof and all costs to and damages of Benson created by the Project must not be borne by Benson.

Benson respectfully request that the Report and Statement must not be approved without substantial and proven mitigation measures for addressing the concerns raised in this letter.

Your very truly,

BRADFORD RECLAMATION DISTRICT NO. 2059

Robert C. Benson

Jean M. Benson

PAGE 6 OF 6

#### Robert C. and Jean M. Benson

This comment letter is identical to Comment Letter C7 from Bradford Reclamation District No. 2059. As indicated below, see responses to Comment Letter C7 for responses to the following comments.

- **E10-1.** See response to Comment C7-1.
- **E10-2.** See response to Comment C7-2.
- **E10-3.** See response to Comment C7-3.
- **E10-4.** See response to Comment C7-4.
- **E10-5.** See response to Comment C7-5.
- **E10-6.** See response to Comment C7-6.
- **E10-7.** See response to Comment C7-7.
- **E10-8.** See response to Comment C7-8.



P.O. Box 15140, Sacramento, CA 95851-5140 (916) 852-1273

December 19, 1995

California State Water
Resources Control Board
Division of Water Rights
Attn: Jim Sutton
P.O. Box 2000
Sacramento, CA 95812-2000

Subject: Comments on the Delta Wetlands Draft EIR/EIS

Provided by the California-Oregon Transmission Project

Dear Mr. Sutton:

The California-Oregon Transmission Project (COTP) has an established waterfowl mitigation site on Palm Tract "B." Palm Tract "B" is located on a delta island directly west of Bacon Island and directly south of Holland Tract in Contra Costa County (see attached map). As project manager of the COTP, the Transmission Agency of Northern California (TANC) owns Palm Tract "B" and manages the 1,213 acre waterfowl mitigation site. As an adjacent landowner, TANC and the COTP mitigation site, have the potential to be impacted by the proposed Delta Wetlands Project. We have reviewed the September 1995 Delta Wetlands Project Draft Environmental Impact Report and Environmental Impact Statement (Draft EIR/EIS), and have comments on the environmental analysis. The purpose of this letter is to provide our formal comments for consideration in the Final EIR/EIS.

The COTP mitigation site was identified, and a site specific waterfowl habitat mitigation plan adopted, on April 23, 1993 as acknowledged in the Interagency Agreement among TANC, the United States Department of Energy (acting through the Western Area Power Administration), the United States Department of the Interior (acting through the Fish and Wildlife Service), and the California Department of Fish and Game. The Interagency Agreement provides the formal framework for continuing cooperation among the parties in the implementation of Section 9.0 of the COTP Waterfowl Mitigation Plan (February 1992). The final COTP EIS/EIR was issued in January 1988 (DOE/EIS-0128 and State Clearinghouse number 85040914).

Palm Tract "B" was acquired for COTP waterfowl mitigation purposes on July 2, 1993; implementation of the COTP Waterfowl Habitat Management Plan began at that time.

Mr. Jim Sutton December 19, 1995 Page 2

The Department of Fish and Game accepted a grant of conservation easement on the property on September 29, 1994. TANC's management goals on Palm Tract "B" are to provide waterfowl habitat, produce waterfowl, and at the same time sustain an economically viable farming operation. The Final EIR/EIS must evaluate the proposed project's potential to impact the COTP mitigation project. This land use was not identified in either the Land Use and Agriculture Section (3I) or in the Wildlife Section (3H) of the Draft EIR/EIS. As a consequence, certain potential impacts were not addressed. Provided below are our formal comments.

#### Wildlife

The Draft EIR/EIS evaluation of the proposed project's impact to existing and anticipated wildlife resources (pg 3H-10, HEP Analysis and Methodology) does not address the existing COTP mitigation site. The Draft EIR/EIS does not clearly identify impacts of the proposed project on the COTP site. Please provide information on the draft HEP report conclusions on Delta Wetlands project modifications (e.g., the development of recreational facilities and land uses) to habitat suitability on Palm Tract "B." We are especially interested in the impact of project recreational development on habitat suitability (e.g., brood pond use) on Palm Tract "B."

Impact H-17 (page 3H-25) identifies the potential for increased incidence of waterfowl disease. TANC agrees that the potential for outbreaks of avian cholera and botulism present a potentially significant impact to waterfowl. The Draft EIR/EIS does not address the potentially significant impacts that an outbreak of these diseases would have on the waterfowl using the adjacent COTP waterfowl management site. The management strategies included in the proposed mitigation measure (H-3) do not address the need to integrate management strategies with those currently being used on Palm Tract "B." The Draft EIR/EIS must provide information on the relationship between the management of the existing COTP mitigation area and the proposed project. We look forward to working with Delta Wetlands project proponents to define mutually-acceptable management practices to optimize our separate and common wildlife management efforts.

### Trespass and Depredation of Wildlife Resources

The Delta Wetlands hunting program would be private and is anticipated to increase hunting use by 13 - 21 percent. The potential for trespass onto adjacent islands as a result of the Delta Wetlands hunting program and the projected increases in hunting is not addressed. Since the implementation of the COTP Waterfowl Habitat Management Plan, we have experienced problems with trespass hunting and poaching. The impact of the proposed project on trespass and poaching on the COTP mitigation area and the two wildlife islands, including the identification of mitigation measures such as security patrols, must be addressed in the Final EIR/EIS.

#### Hydrology and Water Use

In regard to water rights, water seepage into levee foundations and farmland, and the potential for reservoir island levee failure, we share the concerns of Reclamation District 2036 as noted in its original protest to the State Water Resources Control Board filed on

E11-1

E11-2

E11-3

E11-4

Mr. Jim Sutton December 19, 1995 Page 3

January 19, 1988 and amended by letter dated September 29, 1993. These concerns include the following issues: that the proposed increased period of diversion would increase the potential for conflict with existing water right holders; that increased reservoir storage would increase the threat of overtopping of reservoir levees; and that the potential for seepage into adjacent farmland could negatively impact farming operations and increase water pumping costs. The Draft EIR/EIS does not address potential impacts to adjacent properties, only channels. We do not agree that implementation of the project would result in a "less than significant" impact. The Final EIR/EIS must address the potential impacts that proposed project water use would have on adjacent properties.

If you have any questions regarding these comments, please contact me or Raquel Zachman at the above telephone number and address. We look forward to seeing these comments addressed in the Final EIR/EIS.

Sincerely,

Lynn Rasband

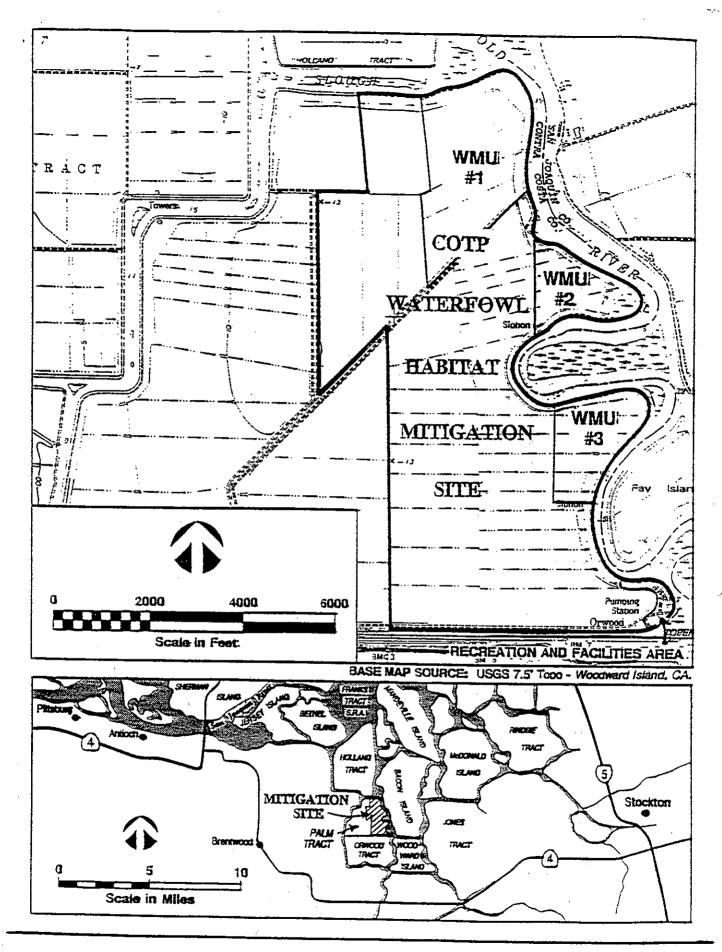
Agency Representative

cc: Mr. Doug and Ron Morris, Palm Tract Farms

Mr. Dante John Nomellini, Reclamation District 2036 secretary and counsel

Mr. Al Jahns, COTP Counsel

E11-4 cont'd



COTP
Waterfowi Habitat
Management Plan

FIGURE 1

VICINITY AND SITE MAP

#### **California-Oregon Transmission Project**

**E11-1.** The commenter states that the 1995 DEIR/EIS does not clearly identify impacts of the Delta Wetlands Project on the California-Oregon Transmission Project (COTP) mitigation site and requests information from the HEP analysis conducted for the Delta Wetlands Project to identify these impacts.

The Delta Wetlands Project could indirectly affect the COTP mitigation site because of changes in the Delta Wetlands island habitat conditions, or it could contribute to cumulative changes in the project area. These impacts are already identified in Chapter 3H and include the potential for increased incidence of waterfowl diseases, potential changes in local and regional waterfowl use patterns, and cumulative changes in foraging habitat for wintering waterfowl and herbaceous habitats in the Delta.

The HEP analysis conducted to evaluate existing wildlife habitat values and values anticipated to be created with implementation of earlier versions of the Delta Wetlands Project is described on pages 3H-10 and 3H-11 of the 1995 DEIR/EIS (pages 3H-11 and 3H-12 of FEIS Volume 1). The purpose of a HEP analysis is to assess the direct impacts of the Delta Wetlands Project on wildlife communities on the project islands. The HEP procedure compares the quality and acreages of habitats under pre-project and project conditions to determine changes in total habitat value on the project site. Therefore, the HEP results would not provide the commenter with additional information about the effects of the Delta Wetlands Project on the COTP mitigation site.

- E11-2. The commenter recommends including language in the 1995 DEIR/EIS that describes how the Delta Wetlands Project strategies to control wildlife disease would be integrated with strategies used on the COTP site. DFG and USFWS are responsible for controlling waterfowl disease outbreaks in the Delta region and would be responsible for ensuring that Delta Wetlands' disease control program is consistent with their regional control programs. Because Mitigation Measure H-3 requires Delta Wetlands to develop and implement a disease control program in consultation with DFG and USFWS and the COTP mitigation plan was adopted by DFG and USFWS, the programs should be consistent. Any specific concerns about the consistency of Delta Wetlands' disease control program with nearby programs should be addressed to DFG and USFWS.
- E11-3. The commenter is concerned about the impact of the Delta Wetlands Project on poaching and trespassing in the project area. Table 19 in Appendix G3, "Habitat Management Plan for the Delta Wetlands Habitat Islands", describes restrictions and enforcement actions for regulating the behavior and movement of hunters on the Delta Wetlands Project islands under Alternatives 1 and 2. Refer to pages 11–13 under the section "HMP Implementation Responsibilities and Authorities" for detailed descriptions of the responsibilities of agencies and Delta Wetlands in ensuring compliance with the requirements established by the HMP. Delta Wetlands personnel and local law enforcement officials would have year-round access to all Delta Wetlands Project island areas to control trespassing onsite

and to enforce laws protecting wildlife and fish and other applicable laws (see page 15 of the HMP, "Control of Trespassing and Poaching").

Chapter 3E, "Utilities and Highways", addresses law enforcement issues on the Delta Wetlands Project islands. The 1995 DEIR/EIS identified the increased need for police services as a result of the increased number of people visiting the Delta Wetlands Project islands. Impact E-8, "Increase in Demand for Police Services on the Delta Wetlands Project Islands" (see page 3E-11 of FEIS Volume 1), is considered significant; mitigation measures intended to deter criminal activity and reduce this impact to a less-than-significant level include providing adequate lighting in the vicinity of the recreation facilities, walkways, parking areas, and boat berths and 24-hour onsite private security for the recreation facilities and boat docks on the Delta Wetlands Project islands.

The manager of a DFG wildlife area in the Delta region was contacted for information about DFG's experience with trespassing and illegal hunting and its applicability to the Delta Wetlands Project. DFG operates a hunting program at the Grizzly Island Wildlife Area located on the western edge of the Delta in Solano County. Hunters who check in at Grizzly Island to hunt have never been known to leave the designated DFG hunting areas to hunt illegally in adjacent areas or in the wildlife sanctuaries at Grizzly Island. Hunting programs, such as the one proposed at the Delta Wetlands Project islands, tend to be self-policing. Trespassers occasionally enter the Grizzly Island Wildlife Area by boat from adjacent sloughs to hunt. The problem of trespassing at Grizzly Island is handled by a DFG game warden if one is available; otherwise, the county sheriff's department is called. The DFG offices in Suisun City generally respond to outside complaints by providing the telephone number of the county sheriff's dispatcher's office; the local sheriff's department dispatch is equipped to handle complaints more quickly than DFG if a game warden is not nearby. The DFG offices in Suisun City receive several complaints each year about trespassing from property owners near Grizzly Island. Occasional trespass complaints are received from nearby duck clubs. However, the DFG manager has found no evidence that connects the amount of trespassing on adjacent lands to the hunting program at the Grizzly Island Wildlife Area; trespassing in these areas and at the wildlife area is an existing problem. (Becker pers. comm.)

**E11-4.** Appendix H, "Levee Stability and Seepage Technical Report", of the 2000 REIR/EIS presents an analysis of the potential seepage impacts of Delta Wetlands reservoir operations and evaluates the stability of the Delta Wetlands reservoir island levees. The 2000 REIR/EIS impact analysis includes the recommendations presented in Appendix H for modifying Delta Wetlands' proposed seepage monitoring program and seepage performance standards as a mitigation measure for potential project impacts. Because seepage would be controlled using interceptor wells on the reservoir islands, the project would not increase water pumping costs on neighboring islands.

E12-1

## THE DUTRA GROUP

December 19, 1995

Mr. Jim Sutton
State Water Resources Control Board
Division of Water Rights
P.O. Box 2000
Sacramento, CA 95812-2000

Dear Mr. Sutton:

We are pleased to comment on the *Draft Environmental Impact Report for the Delta Wetlands Project*. Our comments are limited to the flood control aspects of the project and how the enhanced flood protection effects the entire Delta.

As we understand it, a part of the implementation of the Delta Wetlands Project is to bring the levees surrounding all four project islands to Department of Water Resources Bulletin 192-82 Standards. By strengthening these four islands, the entire Delta will be made more secure because of the strategic location of the project islands.

By riprapping the interior surface of the levees on the reservoir islands and installing an interceptor well system along the perimeter of the reservoir islands, seepage transmission from the reservoir islands appears to be adequately addressed. We believe these design elements represent sound engineering and will function effectively.

Arresting or eliminating continued subsidence on the project islands represents a significant benefit of the project. Levee maintenance will be reduced and the future security of the project islands will be enhanced.

We are encouraged to see this pro-active concept for preservation of the integrity of these important Delta Islands and look forward to timely implementation.

Thank you for the opportunity to submit these comments.

Sincerely,

THE DUTRA GROUP

Robert D. Johnston

President

RDJ/lgd Jyss

G:\BJ\DELTAWET.LTR

## The Dutra Group

**E12-1.** The lead agencies acknowledge this comment supporting the project. Because this letter does not specifically comment on the environmental analysis in the 1995 DEIR/EIS, no response is required.

Dec 21,1995

Dear Sir,

I, would as a citizen, who has lived in the Delta since 1927 like to make some comments on the Delta Wetlands Project.

First and most important of all the factors of the Delta, is land subsidence and oxidation. If this is not addressed, the inevitable failure of the Delta levees from this physical fact will certainly be a continuing concern of the Delta Wetlands Project.

This environmental report mentions the fact of the Islands which take in water from the outside rivers are also sinking at a relatively controlled rate, (and this report does not emphasize the cause of this) between flooding's and that this will be a factor in allowing the Island to acquire a greater volume of depth for storage. I would like to bring up the point that it has been my observation that flood water has quite a bit of sediment in it and that this would decrease the volume of space for water storage.

As to the winter migration of birds into the Delta, they come to feed on the residue of the harvested crops and if no crops are planted or supplemental feed encouraged on the Habitant Islands of this project they will have that much less to winter from.

County General plans state that certain acreage zoning is there policy for agriculture in the Delta and that brings up the question of land use in the Delta.

If a higher use of the Delta land is to be promoted, is agriculture tax base to be a continuing policy of the County's responsibility in the Delta? If the Delta Wetlands Project can open the door for a higher use for the Delta, with also, the factor of the State acquiring Delta Lands for Mitigation and Water Transference responsibility, where does all this new direction of economic trend leave the present residents of the Delta who up to this time have been taxed to help support the Delta Levees, under the County General Plan.?

The two Political collages ,the Delta Protection Commission out of Stockton and the Cal-Fed from the Governors office have conflicting philosophies and nether one addresses the Deltas real

E13-1

E13-2

E13-3

needs.

I am a constant promoter of the value of the Delta and have long felt that these appointed officials who have no lasting ties or responsibility in the Delta, have been a mistake.

Our population in the Delta is very small in relation to the responsibility of the Delta to the rest of the State.

One real solution would be a Resource Conservation District, which are a responsible enity with local civilian directors, operated from State law and staffed with Federal employees.

The needs of the Delta have to be addressed and so far these have not been.

Anyway I wish the Delta Wetlands well with its progressive ideas and I hope that this non-agricultural approach will open new door for all of us in the Delta.

my Shelter

Thank you,
Wm Shelton
P O Box 144
Walnut Grove Calif. 95690
Phone 916-776-1890

#### William Shelton

- E13-1. The Delta Wetlands Project islands are currently subsiding as peat soils convert into gas (i.e., oxidize), a process that is accelerated by agricultural practices (see Chapter 3D, page 3D-4 in FEIS Volume 1). In general, flooding the Delta Wetlands Project islands would slow the rate of soil oxidation and land subsidence by eliminating agricultural practices on the reservoir islands. Subsidence would still occur, but at a much slower rate. As described on page 3C-6 of the 1995 DEIR/EIS (page 3C-Z of FEIS Volume 1), the Delta Wetlands reservoir islands are expected to act as settling basins for sediments, which could decrease the volume for storage over time. However, sedimentation on the Delta Wetlands Project islands was predicted to be less than 0.02 inch of deposition per year. Therefore, the amount of subsidence predicted to occur on the islands (approximately 0.5 inch per year) would more than offset the increases in sediment on the reservoir islands.
- **E13-2.** Wintering waterfowl foraging habitats will be developed and managed on the habitat islands as described on page 3H-22 of the 1995 DEIR/EIS (page 3H-24 of FEIS Volume 1) and in Table 2 of the HMP (Appendix G3). The HMP design for waterfowl habitats would provide more pounds per acre of natural and agricultural crop seed than typically would be available as harvest residue. Therefore, the Delta Wetlands Project would increase waterfowl forage on the habitat islands over existing conditions.
- **E13-3.** Approval of the Delta Wetlands Project would not have a direct effect on county policies concerning agricultural zoning in the Delta, nor would project approval affect the amount of remaining land zoned for agricultural land use in the Delta. As discussed in Chapter 3I, "Land Use and Agriculture", in the cumulative impacts section (pages 3I-21 through 3I-23 of the 1995 DEIR/EIS [pages 3I-24 through 3I-26 of FEIS Volume 1]), the Delta Wetlands Project, together with other known and anticipated projects, would result in the cumulative loss of a substantial amount of farmland in the Delta.

A description of existing fiscal conditions, including property and sales tax revenue, on the Delta Wetlands islands is provided in Chapter 3K, "Economic Conditions and Effects". Under the proposed project, property tax revenues generated by the four islands would increase; in addition, sales tax revenue generated by use of the islands would likely increase because of the increase in regional income associated with project-related employment and expenditures. See Chapter 3K for more information.

Delta Wetlands is planning to improve existing levees on all four project islands (see Chapter 3D, "Flood Control"). As a local landowner, Delta Wetlands would continue to contribute to the maintenance of project island levees through the reclamation districts that serve the project islands. Farmers and landowners in the Delta who are currently being assessed by reclamation districts for levee maintenance activities would presumably continue to pay these assessments. The Delta Wetlands Project is not anticipated to result in increased assessments for levee maintenance in the Delta.

## ELLISON & SCHNEIDER

CHRISTOPHER T. ELLISON
ANNE J. SCHNEIDER
DOUGLAS K. KERNER, OF COUNSEL
MARGARET G. LEAVITT, OF COUNSEL

#### ATTORNEYS AT LAW

2015 H STREET

Sacramento, California 95814-3109 Telephone (916) 447-2166 Fax (916) 447-3512 MARY J. NOVAK LYNN M. HAUG ANNE W. DAY WENDY M. FISHER

December 20, 1995

#### **VIA HAND DELIVERY**

Jim Sutton
State Water Resources Control Board
901 P Street, Third Floor
P.O. Box 2000
Sacramento, California 95812-2000

Jim Monroe U.S. Army Corps of Engineers Regulatory Section 1325 "J" Street, 14th Floor Sacramento, California 95814-2922

Re: Delta Wetlands Project -- Comments Draft EIR/S

Dear Jim and Jim:

Enclosed are the minor comments of Delta Wetlands on the Draft Environmental Impact Report/Environmental Impact Statement ("DEIR/S") for the Delta Wetlands project. Delta Wetlands believes that the DEIR/S fully and completely examines the impacts of the project on the environment and is an exemplary effort by Jones and Stokes Associates under the direction of the Lead Agencies.

If you have any questions, please feel free to call me, John Winther and/or David Forkel.

Sincerely,

Mary J. Novak

Enclosure

cc: Jim (

Jim Canaday
David Cornelius
David Forkel
Jim Easton

#### **DELTA WETLANDS COMMENTS**

(December 20, 1995)

#### **Summary**

<u>Page S-6, fourth full paragraph.</u> This paragraph states that water transfers and water banking on DW islands would require further environmental analysis beyond that provided for the DW project. The impacts associated with vegetation, wetlands and wildlife on the reservoir islands would not require further environmental review; the values for those resources on the reservoir islands are fully compensated by the HMP. However, fisheries and hydrodynamics would have to be transfer specific.

E14-1

## Chapter 2. Project Alternatives

Page 2-3, bottom of page through page 2-4, top of page. This paragraph states that water transfers and water banking on DW islands "would require separate authorization and may require further environmental documentation beyond that provided for the DW project." The impacts associated with vegetation, wetlands and wildlife on the reservoir islands would not require further environmental review; the values for those resources on the reservoir islands are fully compensated by the HMP.

E14-2

<u>Page 2-9, sixth full paragraph.</u> The habitat islands compensate for the impacts of project facility construction and water storage operations on the reservoir islands. In addition, the vegetation, wetlands and wildlife values provided by the habitat islands compensate for all uses of the reservoir islands, including the use of the reservoir islands for water transfers and banking.

E14-3

<u>Page 2-16, third and fourth full paragraphs</u>. These paragraphs describe a process that has not yet been determined. In the final EIR/S these paragraphs should be struck and the following paragraph inserted:

E14-4

The DW project permits would contain terms and conditions that specify the allowable project operations under which the DW project will be able to divert water to storage. SWRCB terms and conditions for the requested DW water rights would specify DW project operational rules and guidelines related to meeting applicable Delta objectives, not interfering with prior water rights and for taking only surplus water.

This comment also applies to Appendix A4, Page A4-3, second through fourth paragraphs and Chapter 3A, Page 3A-11, first and second paragraphs.

## Chapter 3B. Hydrodynamics

<u>Page 3B-22 bottom of page.</u> The unacceptable hydrodynamic conditions in Old and Middle River are limited by maximum SWP pumping exports, not by DW operations.

E14-5

## Chapter 3C. Water Quality

General Comment. DW endorses the qualitative approach to changes in DOC sources set forth in Table 3C-2, item #4 as it is straightforward and therefore, should be described in more detail in the text of the chapter. Through this approach, it should be concluded that the DW Project impacts described in this chapter are insignificant and when taken as a whole, result in a slight benefit. This is further supported by the analysis set forth by Gilbert, et al. in the attached Memo to A. Schneider.

E14-6

## Chapter 3D. Flood Control

<u>Page 3D-3, fourth paragraph.</u> HLA is no longer collecting the data referenced in this paragraph; that task is now being done exclusively by Hultgren Geotechnical Engineers.

E14-7

<u>Page 3D-9</u>, <u>seventh full paragraph</u>. This paragraph makes an unstated assumption that probably should be included, which is that the measured head increase in a well or wells must correlate with filling of the reservoir to be considered an indication of being caused by DW.

E14-8

<u>Page 3D-10</u>, <u>first full paragraph</u>. The bi-weekly reports called for during initial diversions are appropriate for the first year of diversion and as diversions reach new stages thereafter. Monthly reports should be adequate for years two and three, and quarterly reports for the following years.

E14-9

<u>Page 3D-10</u>, second full paragraph. Prior to installing additional interceptor wells, the pumping rates of the existing interceptor wells should be adjusted.

E14-10

<u>Page 3D-11, seventh paragraph</u>. This paragraph provides a level of detail to the program that is preliminary and subject to change with final design.

E14-11

<u>Page 3D-16</u>, <u>eighth paragraph</u>. Activity for final design of the dam on the south side of SR12 has been suspended since Alternative 3 is no longer the preferred alternative.

### **Chapter 3F: Fishery Resources**

<u>Page 3F-9, third full paragraph.</u> The water residence time on both reservoir and habitat islands will be such that an invertebrate population will be developed and supported by whatever DOC levels there may be in the water. The phyto- and zooplankton will in part evolve into higher forms of particulate organic carbon (POC), which would be an addition to the food chain and which would be excluded from the DOC component that threatens water quality. These organics will have positive benefits for fish as explained in the attached analysis by Natural Resource Consulting Scientists, Inc., dated December 4, 1995.

E14-13

<u>Page 3F-11, sixth paragraph.</u> As described in the Biological Assessment for the DW project, the USFWS mortality model was based on empirical data using many pre-smolts in the agency's experiments. Therefore, the recent "Delta-rearing mortality" assumed by NMFS is already inherently incorporated into the USFWS salmon model and the applicability of the model to winter-run mortality has validity.

E14-14

<u>Page 3F-11, eighth paragraph.</u> Because young chinook salmon do not behave as a "particle of water", the CDFP would likely significantly overstate salmon mortality, or at least indicate a worst-case impact. Any young salmon in the Delta would not passively follow the flow. It is more probable that most fish would take up short-term residency in the Delta and rear (presmolts) or actively migrate to salt water following tidal-induced behavioral cues (smolts).

E14-15

<u>Page 3F-16, ninth full paragraph.</u> The Kjelson <u>et al.</u> (1989b) reference in this paragraph used the 60°F value for conditions throughout the interior Delta, not localized Delta channel water temperatures as implied here. The affects of DW project discharges on water temperature will only be localized.

E14-16

<u>Page 3F-17, final paragraph.</u> This paragraph cites Table 3F-1 for the proposition that DW diversions were simulated to reduce average monthly outflow "by more than 25% during September-January of some years." This statement grossly overstates the impacts associated with DW operations. The average is 2.88-5.85% and the 18 out of 70 years is more accurately 18 times in 350 months (70 years x 5 months) or 5.14% of the time.

E14-17

<u>Page 3F-19</u>, first paragraph. When DW is not diverting to storage under Alternatives 1-3, there would be a beneficial affect to QWEST due to the decrease in "actual" in-Delta consumptive use that is not currently addressed in the OWEST calculation.

E14-18

Page 3F-22, seventh paragraph. Although little is currently understood about factors affecting annual variability in distributions and timing of delta smelt spawning, the geographic spawning distribution of delta smelt is recognized to vary from year to year. Some spawning is also suspected to occur in sloughs tributary to Suisun Bay and Montezuma Slough in some years. There is some recent evidence suggested by U.C. Davis investigators and DFG monitoring (Dale Sweetnam, personal communication) that in some years a higher proportion of delta smelt spawn on the Sacramento River side of the Delta and thus, impacts of DW operations in those years

would be less than assessed with the assumed uniform spawning distribution.	The response of
delta smelt spawning migration timing differs depending on water year hydro	ologic conditions.
The reproductive cycles and onset of various reproductive events for many sp	ecies of estuarine
and riverine fishes is affected by such environmental factors.	

E14-19 cont'd

<u>Page 3F-22, first paragraph.</u> DW impacts on striped bass are considered significant because of the indirect effects associated with DW operations. However, the analysis in this chapter fails to account for the benefits of forgone agricultural diversions or the screening of screenable fish due to implementation of the DW project.

E14-20

<u>Page 3F-23, second paragraph.</u> The DW project's use of fish screens will reduce affects of diversions on adults and larger juvenile Delta smelt. Additionally, information is being developed to facilitate better understanding of diversion-related mortality of smelt (e.g. entrainment, impingement, abrasion and predation).

E14-21

<u>Page 3F-24, fourth full paragraph.</u> As with delta smelt, the DW project's use of fish screens would reduce effects of diversions on longfin smelt adults and larger juveniles.

E14-22

<u>Page 3F-35</u>, first full paragraph. The likelihood of levee failure is greater under the No-Project alternative than under the other Alternatives analyzed in this DEIR/S. Levee failure would have serious consequences for Delta fisheries. The benefits of increased levee stability need to be recognized.

E14-23

## APPENDIX G3 - HABITAT MANAGEMENT PLAN FOR THE DELTA WETLANDS HABITAT ISLANDS

<u>Page G3-6, final paragraph.</u> The closed zones referenced here were designed to ensure that compensation objectives are met for greater sandhill cranes only. The closed zones may be a benefit to waterfowl, but they were not required to meet compensation objectives for waterfowl.

E14-24

<u>Table G3-19, page 4.</u> The agreements made at the HMP meetings were that the mourning dove hunting restrictions identified in the "Free-Roam Hunting Zone" column apply only during waterfowl hunting season. Mourning dove hunting should not be restricted prior to waterfowl season.

## APPENDIX G5 - SUMMARY OF JURISDICTIONAL WETLAND IMPACTS AND MITIGATION

<u>Page G5-10, fourth paragraph.</u> DW has not agreed to plant tule and cattail plugs on the habitat islands. DW is required to meet the performance criteria set forth in the HMP. Plugs or seeds therefore may be planted to establish these habitat types, but only if necessary in the event of a failure of the habitat to occur naturally.

E14-26

<u>Page G5-11, top of page.</u> This paragraph unnecessarily limits wetlands management to disking. To maintain productivity of wetland plants, portions of each cell may be disked or otherwise managed.

E14-27

# CHAPTER 3H: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES - WILDLIFE

<u>Page 3H-19</u>, fifth full paragraph. The fifth and sixth bullets on this page, as well as other statements in this chapter, state that the purpose behind requiring closed zones on the habitat islands was to provide benefits to waterfowl as well as greater sandhill cranes. However, the closed zones were required to compensate for greater sandhill crane impacts only. The closed zones may be a benefit to waterfowl, but they were not required to meet compensation objectives for waterfowl.

E14-28

## Chapter I. Land Use and Agriculture

<u>Chapter 3I-14</u>, fifth full paragraph. The document states that no mitigation is available for Impact I-3; however, reduction of agricultural production on Holland and Webb Tracts (and other west Delta islands) has been identified by the state (DWR 1988) as critical for Delta water quality protection (see page 3I-15, third paragraph). Discussions that DW has had with Contra Costa County indicate that the county does not agree with the "prime" agricultural land classification.

E14-29

## Chapter 3J. Recreation and Visual Resources

<u>General Comment.</u> DW believes the boat usage assumptions developed for this chapter are too high and therefore, the impacts to other resource areas (e.g. traffic and air quality) are overstated.

## Chapter 3L. Traffic

<u>Page 3L-5</u>, <u>fourth full paragraph</u>. The vehicle travel between the recreation facilities and the airstrip will be di minimus.

E14-31

## Chapter 3M. Cultural Resources

<u>Page 3M-1, fourth paragraph.</u> This paragraph references intact burials present on Holland Tract under Alternatives 1 and 2. This is incorrect. The area with the intact burials on Holland Tract was excluded from the project area for Alternatives 1 and 2. The intact burials would only be impacted under Alternative 3. <u>See</u> page 3M-11, fourth full paragraph.

Memo to:

Anne Schneider (copy to J. Winther)

From:

J. Gilbert

B.J. Miller T. Mongan

Rc:

Comments on Delta Wetlands Project Draft EIR/EIS prepared in response

to your request:

Water Quality Impacts and Mitigation Measures Section (Chapter 3C)

#### SUMMARY

The results of the water quality analyses conducted for the Delta Wetlands Project Dråft EIR/EIS support a finding of no significant impact. The water quality analyses in the EIR/EIS clearly demonstrate that the Delta Wetlands Project will have no significant impact on Delta water quality, or the quality of drinking water taken from the Delta. Therefore, there is no need for most of the mitigation measures proposed in the EIR/EIS to mitigate "significant impacts" on water quality. Monitoring water releases from Delta Wetlands islands for compliance with discharge standards will suffice to insure that project impacts on Delta water quality are not significant.

#### DISCUSSION

This discussion of the impact analyses in the Delta Wetlands Project Draft EIR/EIS focuses on Delta Wetlands Project Alternative 1.

Analysis indicates that the Delta Wetlands Project will slightly reduce THM in drinking water taken from the Delta.

The EIR/EIS identifies significant adverse effects on disinfection byproducts created when Delta water is treated for household use. However, the supporting analysis indicates that the Delta Wetlands Project would slightly reduce harmful disinfection byproducts in drinking water.

Long term exposure to disinfection byproducts such as trihalomethanes (TIIM) is the important factor for public health. That is why TIIM Water Quality Objectives specify annual average values. The EIR/EIS impact analysis (Figure 3C-19, page C5-8 and Figure C5-15) indicates that long-term average TIIM levels in treated drinking water taken from the Delta will be 0.1% less under Alternative 1 than under the No Project Alternative. This suggests that Alternative 1 would have a small beneficial effect on public health.

There is always uncertainty inherent in any simulation modeling. More uncertainty is introduced when a series of simulation models are used in combination, as in the simulation of THM levels in drinking water taken from the Delta. However, the simulation modeling results are useful for indicating a trend, and they indicate that the Delta Wetlands Project will slightly reduce long-term average THM concentrations in drinking water taken from the Delta, and produce a small public health benefit.

## The EIR/EIS data support a conclusion of insignificant impact on water quality.

It is claimed that Alternative 1 has a significant adverse impact on THM levels, based on simulation of monthly average THM levels in treated water for the years 1967 through 1991. This is because, in only three months during these 25 years (June, July and August of 1977, the worst drought year on record), monthly average simulated THM concentrations exceeded 90 micrograms per liter. In fact, the simulation indicates an annual average THM concentration for 1977 of only 74 micrograms per liter. This is well below the 100 micrograms per liter annual average Water Quality Objective and only 10% higher than the simulated annual average for the No Project Alternative. Indeed, the simulated No Project Alternative monthly average THM concentrations in June, July and August 1977 exceeded the EIR/EIS monthly average significance threshold of 90 micrograms per liter.

It seems likely that the annual average THM Water Quality Objective will be lowered in the future. Regardless of the anticipated change, the water quality analysis for the EIR/EIS indicates that the effects of the Delta Wetlands Project on THM levels in drinking water taken from the Delta will be insignificant.

Dissolved organic carbon (DOC) is important mainly because it indicates the potential for formation of disinfection byproducts such as trihalomethanes. So, it is long-term average DOC concentrations in Delta water that are of public health concern. Simulation modeling results (Figure 3C-19, Page C5-8, Figure C5-15) indicate that Alternative 1 will lower long-term average DOC concentrations in Delta waters by 1% compared to the No Project Alternative. Overlooking the uncertainty in the modeling results, this indicates that Alternative 1 would produce a small public health benefit. However, because the simulated monthly average DOC concentration for Alternative 1 exceeded the simulated DOC concentration for the No Project Alternative in one month out of the 25 year simulation (Table 3C-7 - the one month was July 1978, as shown in Table C5-3), it is claimed that Alternative 1 will have a significant impact on DOC levels in Delta water. This interpretation of the DOC analysis in the EIR/EIS effectively double counts the conclusions of the THM analysis.

Finally, it is claimed that Alternative 1 will have significant impacts on EC and chloride levels in the Delta, even though the simulations show that Alternative 1 will never exceed EC and chloride water quality objectives in the Delta (pages 3C-26 and 3C-27).

E14-33 cont'd

All these determinations of "significant impact" contradict the assumption that beneficial uses of Delta water are adequately protected if water quality parameters remain below regulatory Water Quality Objectives,

The above conclusions are supported by material in the technical appendices to the EIR/EIS.

The technical appendices to the EIR/EIS discuss the models and data used to estimate:

- DOC contributions from Delta Wetlands Project islands;
- effects of the Delta Wetlands Project on DOC and bromine concentrations in water exported from the Delta; and
- THM concentrations in Delta water treated for municipal use.

#### DOC contributions from islands

The information in Appendix C3 indicates:

- Substantial leaching of DOC from peat soils is not likely to occur under flooded wetland conditions (pages C3-1 and C3-8).
- Only 3-4% of the organic carbon produced by decaying vegetation in ponded water remains in the water as DOC, and the rest is lost as carbon dioxide gas during acrobic decomposition (page C3-19).
- The DOC load produced by wetland vegetation is estimated at about one fourth of the DOC load produced by corn crop residues left in agricultural fields (page C3-19).
- Availability of DOC in soil water is greater in surface peat soils under agricultural conditions than in wetland soils (page C3-19).

These data indicate that Delta Wetland Project islands will contribute <u>less</u> DOC to Delta waters than agricultural islands. However, Appendix C4 (page C4-6) assumes DOC loading from Delta Wetland islands is roughly the same as from lowland agricultural islands.

## DOC and bromine concentrations in export water

Despite the questionable assumption that DOC contributions from Delta Wetland islands are similar to the contributions from agricultural islands, model simulations indicated that

E14-33 cont'd

concentrations of DOC in water exported from the Delta was about 1% less with Delta Wetlands Project operations than under the No Project Alternative (page C4-9).

Table C5-3 shows that simulated bromine concentrations in water exported from the Delta are generally <u>lower</u> with Delta Wetlands Project operations than under the No Project Alternative. Bromine concentration is important, because it affects the production of some types of THM.

## THM concentrations in treated water

Appendix C5 reports the results of model simulations of THM concentrations in Delta water treated for municipal use. Compared to the No Project Alternative, average THM concentrations were:

- 1% lower for Alternative I.
- .05 % lower for Alternative 2, and
- 2% lower for Alternative 3.

E14-33 cont'd

## NATURAL RESOURCE SCIENTISTS, INC.

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#### TECHNICAL MEMORANDUM

To:

John Winther, Delta Wetlands

From:

Keith Marine, Aquatic Ecologist/Fishery Scientist

Subject:

Delta Wetlands Project Benefit: Supplementing Zooplankton Availability to Delta

Fishes.

Date:

December 4, 1995

I have examined the potential benefit of supplementation of zooplankton production in the Delta envisioned to accompany the operation of the proposed Delta Wetlands Project in more detail than provided in the EIR/S. I have drawn on several bodies of information and knowledge which include some reports of the National Reservoir Research Program, the San Francisco Estuary Project Status and Trends Reports, discussions with Department of Water Resources biologists and technicians, and some ecological theory and working hypotheses regarding limnological processes and zooplankton population ecology. In this regard, several important ecological aspects of the proposed Delta Wetlands Project operations were found to be of interest.

## The Proposed Potential Benefit

One of the potential environmental benefits envisioned to accrue from operation of the currently proposed Delta Wetlands Project is the contribution of considerable amounts of zooplankton in the discharges from project islands to the Delta channels. The main benefit of this augmentation of zooplankton to those produced in the waters of the Delta channels would be to supplement the existing food base for many important Delta fishes including:

- all life stages of delta smelt
- larval and juvenile striped bass
- larval and juvenile longfin smelt
- larval and juvenile splittail
- juvenile chinook salmon
- juvenile steelhead

Many other species of resident and anadromous fishes and other planktivorous vertebrates (e.g., many species of waterfowl) would similarly benefit from zooplankton produced on the Delta Wetlands reservoir and habitat islands and subsequently discharged into the Delta channels.

The Operational and Ecological Context of the Proposed Potential Benefit

Conceptually, some aspects of proposed operation of the Delta Wetlands Project conform to ecosystem-level management concepts of managing for maintenance of ecological functions and dynamics. The historic winter-time flooding of Delta islands and marshlands and the subsequent primary- and secondary-level trophic production (i.e., photosynthetic carbon-fixing and microand macroplankton production) are considered to have been important to the historic biological productivity of the Delta (Herbold et al. 1992). Both Herbold et al. (1992) and Obrebski et al. (1992) in reviewing the status and trends of biotic resources of the San Francisco Bay-Delta Estuary emphasized the importance of shoal habitats (shallow water areas) for fresh and brackish water productivity. In general, proposed operations of the Delta Wetlands Project would follow the historic Delta island flooding pattern by diverting water to storage on the islands mostly during high fall and wintertime river flows. This water spread out over the reservoir islands, and distributed to managed wetland areas on the habitat islands, would have an increased biologically productive photic zone per unit volume of water compared to the same volume of water remaining in the Delta channels. Similarly, an increase in surface area of substrate for benthic production per unit of water volume compared to the same volume of water remaining in the Delta channels could also be expected. During discharge operations, planktonic and some benthic production would become available to Delta fishes. Similarly, benthic production would become accessible to waterfowl and shore birds with shallowing and exposure of the bottom substrate during reservoir island drawdowns.

Reduced Predation Pressure on Zooplankton Production

One operational condition that would contribute to the production of zooplankton is the use of effective fish screens on diversion intakes. By minimizing the entrainment of fishes in the diversions, the water stored on the reservoir islands and circulated on the habitat islands would be relatively fish free. The effects of fish predation on zooplankton composition, production, and population dynamics has been fairly well established in the scientific literature (Brooks and Dodson 1965, Downing 1984, Galbraith 1967, Hutchinson 1971, Lindeman 1942, Martin et al. 1981). In the absence of established planktivorous fish populations on the Delta Wetlands islands, zooplankton production would not be constrained through predation pressures; thus, enhancing the biomass available to Delta fishes upon discharge from the islands.

## Reservoir Tailwater Enhancement

A considerable body of research has demonstrated the contribution and correlation of lacustrine zooplankton and benthos production dynamics to biotic and fishery production in tailwaters of many impoundments (Martin and Novotny 1977, Morris et al. 1968, Walburg et al. 1971). These studies have demonstrated that fishes inhabiting the tailwaters exploit the zooplankton and benthos in reservoir discharges as a principal food source. Several species of fishes inhabiting tailraces downstream from the impoundments were found to exhibit superior growth rates and condition compared to the same species inhabiting the reservoirs. While these mainstem reservoir examples do not serve as directly analogous models for the Delta Wetlands Project, nor are they without ecological impacts, they do illustrate that lacustrine zooplankton production can contribute to food resources for fishes downstream from reservoirs.

A more relevant model for the Delta Wetlands Project would be the operation of the Thermolito Afterbay on the Feather River downstream from Oroville Dam. The Thermolito Afterbay is more

E14-34 cont'd

similar to the Delta Wetlands reservoir islands than would be a mainstem river reservoir such as discussed in the previous paragraph. An inquiry and discussions with several DWR biologists and water quality technicians revealed that zooplankton have not been sampled as part of regular water quality monitoring programs. However, some records of primary productivity, measured as chlorophyll a biomass, do exist¹. Direct measurements and comparisons of Thermolito Afterbay discharge with the receiving water of the Feather River are not available at this time but field observations of the technicians indicate that the Thermolito discharge is slightly more turbid than the Feather River which is likely indicative of an increased planktonic production in the afterbay.

#### Zooplankton Composition

The species composition of zooplankton that would develop in the Delta Wetlands Project reservoir islands and habitat islands wetlands is not specifically known. However, it is likely that zooplankton composition would be similar to that inhabiting Delta sloughs and backwaters areas. A brief zooplankton survey conducted in 1988 at the Bedford Demonstration Pond on Holland Tract indicated that daphnid and bosminid cladocerans and cyclopoid and diaptomid copepods dominated the zooplankton fauna during the March to July season (Ecological Research Associates, 1988 unpublished data provided to JSA). Zooplankton species in these crustacean families are known to be important prey for most larval and juvenile fishes inhabiting the Delta, including delta smelt, striped bass, American shad, and outmigrating juvenile salmonids. While no estimates of secondary productivity of the Bedford Demonstration Pond were provided, anecdotal comments indicate that samples contained tremendously abundant zooplankters.

#### References

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Downing, J.A. 1984. Assessment of secondary production: The first step. Pages 1-18 in J.A. Downing and F.H. Rigler (editors), A Manual on Methods for the Assessment of Secondary Productivity in Freshwaters. IBP Handbook 17. Second Edition. Blackwell Scientific Publishers, Oxford, England.

Galbraith, Jr., M.G. 1967. Size-selective predation on *Daphnia* by rainbow trout and yellow perch. Transaction of the American Fisheries Society 96: 1-10.

Herbold, B., A.D. Jassby, and P.B. Moyle. 1992. San Francisco Estuary Project Status and Trends Report on Aquatic Resources in the San Francisco Estuary. U.S. Environmental Protection Agency. March 1992. 257p. and two appendices.

Hutchinson, B.P. 1971. The effects of fish predation on the zooplankton of ten Adirondack Lakes, with particular reference to the alewife, *Alosa pseudoharengus*, Transaction of the American Fisheries Society 100: 325-335.

E14-34 cont'd

<sup>&</sup>lt;sup>1</sup>A time series data set for several years has been requested from the DWR Oroville Field Office but was not received at the time of this compilation.

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Walburg, C.H., G.L. Kaiser, and P.L. Hudson. 1971. Lewis and Clark Lake tailwater biota and some relations of the tailwater reservoir fish populations. Pages 449-467 in Reservoir Fisheries and Limnology. Special Publication No. 8. American Fisheries Society.

#### **Delta Wetlands Properties (Ellison & Schneider)**

**E14-1.** The NEPA and CEQA analysis states that use of the Delta Wetlands reservoir islands for water transfers and water banking would require separate authorization from the SWRCB and may require further environmental documentation. As stated repeatedly in the 1995 DEIR/EIS, Delta Wetlands would not be required to create wetland habitat on the reservoir islands to compensate for impacts on wildlife or wetland resources resulting from water storage operations. All impacts on wetlands and wildlife habitat on the Delta Wetlands reservoir islands resulting from the construction of facilities, upgrading of levees, and inundation of the islands would be offset by the creation and maintenance of compensation habitat on the habitat islands under the HMP (see Chapters 3G and 3H).

Water transfers and water banking may change the frequency and/or magnitude of water storage on the Delta Wetlands Project islands; however, these uses would not result in a need for additional facilities or storage capacity in excess of that established under terms and conditions of the Delta Wetlands water right permits. Therefore, no additional mitigation for vegetation and wildlife impacts should be needed. However, this determination must made during subsequent authorization of water transfers and banking activity.

- **E14-2.** See response to Comment E14-1.
- **E14-3.** See response to Comment E14-1.
- **E14-4.** This is not a comment on the environmental effects of the project; no response is required.
- E14-5. This comment refers to Impact B-9, "Cumulative Hydrodynamic Effects on Net Channel Flows", and Mitigation Measure B-1, "Operate the Delta Wetlands Project to Prevent Unacceptable Hydrodynamic Effects in the Middle River and Old River Channels during Flows That Are Higher Than Historical Flows" (see FEIS Volume 1, page 3B-24). The flow and velocity in Old and Middle Rivers are governed by the maximum allowable SWP and CVP export capacities regardless of the source of exported water. Delta Wetlands Project operations therefore cannot change the maximum flows and velocities in these channels, although they would increase the frequency of maximum channel flows and velocities.
- **E14-6.** Project effects on DOC concentrations in Delta exports are a function of:
  - # the DOC concentrations in water diverted onto the Delta Wetlands islands;
  - # evaporative losses;
  - # DOC loading from peat soils and plant growth;
  - # residence time (i.e., the length of time that water is stored on the islands before it is discharged);
  - # DOC concentrations in Delta receiving waters at the time of Delta Wetlands discharges; and

# the relative amount of Delta Wetlands water in exports.

As shown in the evaluations of Delta Wetlands Project impacts on DOC presented in Chapter 3C of the 1995 DEIR/EIS and Chapter 4 of the 2000 REIR/EIS (see FEIS Volume 1, Chapter 3C), DOC concentrations at the export locations under project operations may be higher or lower in any given month than concentrations under no-project conditions. Because the increases sometimes exceed the monthly significance threshold, project effects on DOC concentrations are considered a significant impact. See also response to E14-33 below.

**E14-7.** The third sentence of the fourth paragraph in page 3D-3 of the 1995 DEIR/EIS (page 3D-3 of FEIS Volume 1) has been revised as follows, in response to this comment and comments on the 2000 REIR/EIS (see Comment R10-26):

Site-specific information on groundwater conditions on the Delta Wetlands islands and neighboring islands is now being was collected by HLA and Hultgren Geotechnical Engineers under contract to Delta Wetlands between 1989 and 1997 to give an indication of existing seepage through the aquifer.

- **E14-8.** Changes in the water table on adjacent islands attributable to the Delta Wetlands Project would coincide with reservoir filling and drawdown periods. Therefore, seepage performance standards would apply during reservoir fillings.
- **E14-9.** The commenter is correct in stating that the biweekly reporting described in the 1995 DEIR/EIS would apply during the first year of diversion and as diversions reach new stages thereafter. The technical review committee formed to review groundwater monitoring data collected during the operation of the project would be responsible for determining the appropriate reporting frequency after the first year of filling.

The protest dismissal agreement submitted by Delta Wetlands and EBMUD during the water right hearing proposes more details regarding the structure and duties of the technical review committee, identified in the agreement as the "Reservoir Island Monitoring and Action Board (MAB)". Under the proposed agreement, Delta Wetlands would summit monitoring and seepage data to the MAB at each stage of initial reservoir filling. After that initial filling, the MAB would review monitoring and seepage data at least once every 3 months during the remainder of the first year of project reservoir island operation. Additionally, Delta Wetlands would make groundwater and surface water data (e.g., daily mean groundwater levels from seepage monitoring and background wells, daily pool elevations in the reservoirs, daily mean of water level in channels) available publicly via the Internet or similarly accessible means as soon as readily available. The SWRCB included some of the terms of the protest dismissal agreement in the terms and conditions of the Delta Wetlands water right permit.

**E14-10.** The commenter is correct in stating that before additional interceptor wells are installed, pumping rates of existing wells would be adjusted to draw down surrounding groundwater

levels to the extent feasible with the existing system. Appendix H of the 2000 REIR/EIS describes Delta Wetlands' proposed remedial measures to control seepage in more detail and recommends measures to improve the long-term success of the interceptor well system. The 2000 REIR/EIS impact analysis includes the recommendations presented in Appendix H for modifying Delta Wetlands' proposed seepage monitoring program and seepage performance standards as a mitigation measure for potential project impacts.

The protest dismissal agreement submitted by Delta Wetlands and EBMUD during the water right hearing states that Delta Wetlands would take the following actions to control seepage before seepage reaches the diversion suspension limits:

- 1. Increase pumping rates in interceptor wells.
- 2. Lower outfall head at relief wells.
- 3. Redevelop interceptor wells to improve specific capacity of the wells.
- 4. Redevelop relief wells to improve specific capacity.
- 5. Install additional interceptor wells.
- 6. Install additional relief wells.
- 7. Implement other mitigation that may be mutually agreeable between Delta Wetlands, the affected adjacent landowners, and the neighboring island reclamation district.
- 8. Stop diversion.

As described above, the SWRCB included some of the terms of the protest dismissal agreement in the terms and conditions of the Delta Wetlands water right permit.

- **E14-11.** The construction techniques described on page 3D-11 of the 1995 DEIR/EIS (page 3D-12 of FEIS Volume 1) are preliminary and are used for analysis of the environmental effects of the Delta Wetlands Project in the 1995 DEIR/EIS. Actual construction techniques would not result in impacts that exceed those based on the assumptions in the NEPA and CEQA analysis. See also Appendix H of the 2000 REIR/EIS.
- **E14-12.** Although design activity for the Wilkerson dam is not ongoing, the 1995 DEIR/EIS used the most recent design information for purposes of evaluating the environmental impacts of the four-island alternative.
- **E14-13.** The potential benefit of the Delta Wetlands Project described in the comment was identified on page 5-17 of Appendix F2 of the 1995 DEIR/EIS. Levels of productivity and potential benefits to Delta species during discharge cannot be determined from available information.

- **E14-14.** The best available information was used in the evaluation of Delta Wetlands Project impacts on chinook salmon. As discussed on page 3F-11 of the 1995 DEIR/EIS (pages 3F-12 and 3F-13 of FEIS Volume 1), the methods provide an index of potential project effects that can be used to compare alternative Delta Wetlands operations. The indices should not be construed as actual levels of mortality. Simulated monthly conditions cannot accurately characterize the complex conditions and variable time periods that affect survival during migration of salmon through the Delta. See also responses to Comments A2-4 and A2-5 from NMFS and C14-32 from MWD regarding the mortality index used in the fisheries impact assessment in the 1995 DEIR/EIS.
- **E14-15.** The impact assessment approach was designed to be conservative (i.e., assess maximum possible impacts on fish). Many factors that affect the survival of chinook salmon in the Delta are poorly understood; therefore, statements about relationships between actual mortality and indices of mortality must identify the uncertainty of available information. See also response to Comment C14-32.
- **E14-16.** Local impacts were implied by the last statement in the last paragraph under "Water Temperature" on page 3F-16 of the 1995 DEIR/EIS (page 3F-18 of FEIS Volume 1): "The proportion of the juvenile chinook salmon population exposed to Delta Wetlands discharge would likely be much less because most juvenile chinook salmon do not migrate along the Old and Middle River pathway (U.S. Fish and Wildlife Service 1987)". Water temperature impacts would be restricted to the channels receiving Delta Wetlands discharge and would decline with distance from the discharge point.
- **E14-17.** The statement referenced in this comment identifies the potential annual frequency of reductions in outflow that would exceed 25%, as evaluated in the 1995 DEIR/EIS. The project as evaluated would be unlikely to cause reductions in outflow of 25% or more in more than 1 month each year. Presentation of the frequency on a monthly basis, as suggested in the comment, would not provide information on the frequency of annual occurrence. With incorporation of the FOC and biological opinion RPMs into the proposed project, the potential effects of the project on outflow are substantially reduced from the results presented in the 1995 DEIR/EIS analysis.
- **E14-18.** The increase in QWEST and a concurrent increase in Delta outflow is attributable to discontinuation of Delta Wetlands' agricultural diversions; this increase was not specifically discussed in the text on pages 3F-17 (Delta outflow) and 3F-19 (QWEST) in Chapter 3F of the 1995 DEIR/EIS (pages 3F-19 and 3F-20, respectively, of FEIS Volume 1). Simulated changes in QWEST are shown in Appendix F2, Table 5-6. Simulated QWEST increased during the January-through- September period for many years and increased during the March-through-September period in most years of the 70-year simulation performed for the 1995 DEIR/EIS.
- **E14-19.** See response to Comment D13-16.

- **E14-20.** The benefits of forgone agricultural diversions and the protection provided by fish screens are mentioned in the text to which the commenter refers. Although forgoing agricultural diversions could reduce total entrainment losses in the Delta, the population benefit could not be quantified with available information. The impact conclusion was based on the occurrence of historical entrainment from November through January and the changes in hydrologic conditions that may have contributed to entrainment. Delta Wetlands diversions to storage would not directly entrain striped bass (fish screens would prevent entrainment); however, it was concluded that diversions would contribute to conditions that historically have coincided with high entrainment at the CVP and SWP export pumps (i.e., high Delta diversion rates during the first major increase in Delta inflow). These indirect entrainment effects are addressed by incorporation of the FOC and biological opinion RPMs into the proposed project.
- **E14-21.** Response to Comment E14-20 applies to delta smelt as well as striped bass. See also response to Comment B6-60 regarding the fish screening measures in the FOC and biological opinion RPMs, which were incorporated into the proposed project.
- **E14-22.** Response to Comment E14-20 applies to longfin smelt as well as striped bass. See also response to Comment B6-60 regarding the fish screening measures in the FOC and biological opinion RPMs, which were incorporated into the proposed project.
- **E14-23.** Levee failures could have substantial detrimental effects on Delta fish. The benefit to Delta fish resulting from the reduced probability of levee failure was discussed in Appendix F2 of the 1995 DEIR/EIS on pages 5-16 and 5-17. The benefit cannot be quantified with available information.
- **E14-24.** Closed hunting zones would be established for wintering waterfowl as well as for greater sandhill cranes. As described in the HMP, the closed hunting zones would provide undisturbed foraging areas for wintering waterfowl. See page 4 of the HMP under "Foraging Habitat for Wintering Waterfowl: Compensation Provided on the Habitat Islands", and Table 16, "Waterfowl Management Strategies for the Habitat Islands", which state that lakes and a portion of suitable waterfowl foraging habitats should be closed to hunting to minimize human disturbance.
- **E14-25.** The commenter is correct. Hunting would be permitted throughout the portion of mourning dove season that occurs before the opening of waterfowl season. Hunting restrictions described in Table 19 of the HMP apply to the waterfowl hunting season.
- **E14-26.** See response to Comment B6-69.
- **E14-27.** Management of mixed agriculture/seasonal wetlands on habitat islands is described on pages G5-10 and G5-11 in Appendix G5. The second paragraph describes disking as a method for maintaining habitat productivity and does not preclude implementation of other management techniques for maintaining the productivity of wetland plants.

- E14-28. As described on page 3H-19 of the 1995 DEIR/EIS (page 3H-21 of FEIS Volume 1), major elements of the HMP include the establishment of three closed hunting zones: one on Bouldin Island that would provide foraging areas for greater sandhill cranes, and two additional zones (one on each habitat island) that would provide foraging and resting areas for waterfowl. The HMP (Appendix G3) describes compensation provided on the habitat islands for greater sandhill cranes and wintering waterfowl. The sixth full paragraph of page 3 states that "to reduce the impact of hunter disturbance on foraging [greater sandhill] cranes, three closed hunting zones will be established on the habitat islands", and the seventh full paragraph of page 4 states that "three closed hunting zones will be established on the habitat islands to provide undisturbed foraging habitat [for wintering waterfowl]". Therefore, both objectives for the closed hunting zones as described in the 1995 DEIR/EIS and FEIS.
- **E14-29.** Chapter 3I, "Land Use and Agriculture" of the 1995 DEIR/EIS stated that Alternative 1 is inconsistent with the Contra Costa County General Plan Agricultural Principles (Policies 8-G and 8-H) and that no mitigation is available to reduce this impact to a less-than-significant level. Contra Costa General Plan Policy 8-G seeks "to encourage and enhance agriculture, and to maintain and promote a healthy and competitive agricultural economy" (Table 3I-7 in the 1995 DEIR/EIS and FEIS Volume 1). Alternative 1 is inconsistent with this policy because its implementation would remove agricultural land on Holland and Webb Tracts from production, effectively reducing the size of Contra Costa County's agricultural economy. Additionally, both islands have historically supported agricultural production. Reducing agricultural production on Holland and Webb Tracts and other islands may help protect or improve Delta water quality; however, removing farmland from production on Holland and Webb Tracts would not mitigate the impact associated with the inconsistency of Alternative 1 with Policy 8-G. No mitigation is available for this impact.

Contra Costa County General Plan Policy 8-H states that it is the County's goal "to preserve prime productive agricultural land outside the Urban Limit Line exclusively for agriculture" (Table 3I-7 in the 1995 DEIR/EIS and FEIS Volume 1). As discussed in Chapter 3I, the quality and long-term productivity of the soils on the Delta Wetlands islands is debatable, although the California Department of Conservation has designated portions of Holland and Webb Tracts as prime farmland based on soil surveys conducted by the Natural Resources Conservation Service. The Contra Costa County Community Development Department, however, has indicated that under its criteria for designating prime agricultural land, the department does not consider the soils on Holland and Webb Tracts to represent prime farmland (refer to Comment Letter C13). Chapter 3I has therefore been revised to reflect that the project is considered consistent with Contra Costa County General Plan Policy 8-H and that no mitigation is required (see response to Comment C13-16).

**E14-30.** As stated on page 3J-2 of the 1995 DEIR/EIS under "Recreation" (page 3J-2 of FEIS Volume 1) in Chapter 3J, "Recreation and Visual Resources", estimates of recreational boating associated with the Delta Wetlands Project were based on the potential use of recreation facilities at project buildout. See Master Response 5, "Mitigation of

Environmental Effects Related to Use of Recreation Facilities", and responses to Comments B5-8 and B6-58 for more information on boat use estimates.

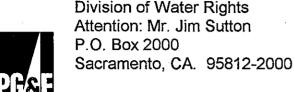
- **E14-31.** The traffic analysis presented in the 1995 DEIR/EIS is based on a worst-case scenario whereby all recreationists would travel to the Delta Wetlands Project islands in passenger vehicles. Additionally, vehicle travel between recreation facilities and the Bouldin Island airstrip would be negligible. Therefore, vehicle travel between recreation facilities and the Bouldin Island airstrip was not included in the sources of traffic. A description of air traffic generated under the Delta Wetlands Project is presented on page 3L-13 of the 1995 DEIR/EIS (page 3L-15 of FEIS Volume 1).
- **E14-32.** As stated on page 3M-11 of the 1995 DEIR/EIS (page 3M-12 of FEIS Volume 1), site CA-CCo-593 is within the area of potential effects for Alternatives 1 and 2. Although no intact burials have been found at CA-CCo-593, their presence cannot be ruled out. Therefore, the text in Chapter 3M regarding the effect of Alternatives 1 and 2 on intact burials, if present, on Holland Tract is correct. The language in the summary on page 3M-1 of the 1995 DEIR/EIS (FEIS Volume 1, page 3M-1) has been revised to reflect this information more accurately.
- **E14-33.** The commenter states that the project would have water quality benefits when evaluated as an average annual change in water quality variables. However, project effects on water quality are evaluated on a monthly basis. The impact analysis presented in the 1995 DEIR/EIS indicated that project operations under Alternatives 1 and 2 could result in increases in salinity, DOC, or THMs that sometimes exceed significance thresholds, which are applied to monthly changes, not annual averages; therefore, impacts on these variables were identified as significant. The analysis of potential impacts of the proposed project on export salinity, DOC, and THMs was updated in the 2000 REIR/EIS. As described in Chapter 4 of the 2000 REIR/EIS, the impacts of Alternatives 1 and 2 on salinity, DOC levels, and potential formation of THMs remain significant because changes attributable to project operations could exceed the significance thresholds in some months (see Chapter 3C of Volume 1 of this FEIS). The proposed mitigation, which includes monitoring and adjustment of discharge rates, would reduce impacts to a less-thansignificant level. The Delta Wetlands Project WQMP negotiated by Delta Wetlands and CUWA includes requirements for monitoring, modeling, and operational controls of water quality that would provide protection of drinking water quality that is equivalent to or better than the mitigation measures in the NEPA and CEQA analysis completed for the project. See also response to Comment C9-1 and Master Response 7, "Analysis of Effects of the Delta Wetlands Project on Disinfection Byproducts", regarding the protections provided by the Delta Wetlands WQMP.
- **E14-34.** The project could supplement the existing food base available to Delta fish, but productivity of the reservoir islands and benefit to Delta fish cannot be quantified with the available information. See response to Comment E14-13.

#### **Pacific Gas and Electric Company**

State Water Resources Control Board

5555 Florin-Perkins Road P.O. Box 277444 Sacramento, CA 95827

December 20, 1995





U.S. Army Corps of Engineers Regulatory Branch Attention: Mr. Jim Monroe 1325 J Street, Room 1444 Sacramento, CA. 95814-2922

Subject: Draft Environmental Impact Report/Statement for the Delta Wetlands Project; Water Right Applications 29061, 29062, 29063, 29066, 30267, 30268, 30269, and 30270; Petitions To Change The Applications; And Application To The U.S. Army Corps Of Engineers For A Permit Pursuant To Section 404 Of The Clean Water Act and Section 10 Of The Rivers And Harbors Act In Contra Costa And San Joaquin Counties.

Dear Mr. Sutton and Mr. Monroe:

Thank you for the opportunity to comment on this Draft EIR\EIS. Please accept these comments in addition to the previous letters and personal communications PG&E has submitted, dating back to 1987, regarding this project.

PG&E owns and operates extensive electrical and natural gas facilities located within the proposed Delta Wetlands project area. To promote the safe and reliable maintenance and operation of utility facilities, the California Public Utilities Commission (CPUC) has mandated specific clearance requirements between utility facilities and surrounding objects or construction activities. To ensure compliance with these standards, project proponents should coordinate with PG&E early in the development of their project plans. Any proposed development plans should provide for unrestricted utility access and prevent easement encroachments that might impair the safe and reliable maintenance and operation of PG&E's facilities.

Project proponents will be responsible for the costs associated with the relocation of existing PG&E facilities to accommodate the proposed Delta Wetlands Project. Because facility relocations require long lead times and are not always feasible, project proponents are encouraged to consult with PG&E as early in their planning stages as possible.

E15-1

Mr. Sutton and Mr. Monroe December 20, 1995 Page 2

Please be advised, Delta Wetlands has not yet established with PG&E any formalized plan, for receiving electric service at any of the proposed pumping/siphon or recreation sites, nor for any coordinated relocation of the existing electric transmission/distribution facilities within the impacted area. PG&E's provision of such new service and/or relocations (at Delta Wetland's expense) may entail the reinforcement, rearrangement, and/or new construction of electric transmission and distribution facilities, either on the four immediate islands or upon surrounding tracts. Delta Wetlands is strongly encouraged to establish (as soon as possible) with PG&E, a coordinated plan to address the relocation of existing electric facilities, and to address the impact new facilities required to provide electric service.

E15-1 cont'd

The term "transmission" generally refers to facilities 50,000 volts (50kV) and above, while "distribution" refers to electric facilities less than 50kV. DW seems to have intermixed these terms throughout the EIR, most notably on pages 3E-9 & 3E-10. Please be aware, PG&E is presently not aware of any electric transmission facilities on the four immediate islands - all facilities in the immediate area are most likely, "distribution". While it is likely that any relocation work may only involve distribution facilities, please note that providing electric service to DW is likely to impact both distribution and transmission facilities in the immediate and surrounding area - including but not limited to, construction of new transmission and/or distribution lines, reconductoring and/or reinforcement of existing lines, expansion of local substations, or construction of new substations. Until a specific formalized plan of new service and relocation is identified, DW's EIR should address the potential for this additional impact. Again, Delta Wetlands is strongly encouraged to establish (as soon as possible) with PG&E, a coordinated plan to address the relocation of existing electric facilities, and to address the impact of any new facilities required to provide electric service.

E15-2

Relocations and upgrades of PG&E's electric transmission and substation facilities (50,000 volts and above) could also require formal approval from the CPUC. If required, this approval process could take up to two years to complete. The Delta Wetlands Project is expected to require the upgrade of at least one substation. Delta Wetlands proponents, with design plans, should consult with PG&E, as soon as design plans are available, for additional information and assistance in the development of cost and schedule.

The proposed project will have a cumulative impact on PG&E's gas and electric systems and may require on-site and off-site additions and improvements to the facilities which supply these services. Because utility facilities are operated as

an integrated system, the presence of an existing gas or electric transmission or distribution facility does not necessarily mean the facility has the capacity to connect new loads.

Expansion of distribution and transmission lines and related facilities is a necessary consequence of growth and development. In addition to adding new distribution feeders, the range of electric system improvements needed to accommodate this project may include upgrading existing substation and transmission line equipment, expanding existing substations to their ultimate buildout capacity, and building new substations and interconnecting transmission lines. Comparable upgrades or additions needed to accommodate additional load on the gas system could include facilities such as regulator stations, odorizer stations, valve lots, distribution and transmission lines.

We would like to recommend that environmental documents for proposed development projects include adequate evaluation of cumulative impacts to utility systems, the utility facilities needed to serve those developments and any potential environmental issues associated with extending utility service to the proposed project. This will assure the project's compliance with CEQA and NEPA and reduce potential delays to the project schedule.

PG&E encourages the State Water Resources Control Board, Division of Water Rights and the U.S. Army Corps of Engineers, Sacramento District to include information about the issue of electric and magnetic fields (EMF) in the Environmental Impact Report and Environmental Impact Statement.

EMFs are invisible fields of force created by electric voltage (electric fields) and by electric current (magnetic fields). Wherever there is a flow of electricity, both electric and magnetic fields are created; in appliances, homes, schools and offices, and in power lines. there is no scientific consensus on the actual health effects of EMF exposure, but it is an issue of public concern. PG&E relies on organizations and health agencies such as the California Department of Health Services, U.S. Environmental Protection Agency and the Electric Power Research Institute to review research on EMF and provide a foundation for developing policies.

Because there is concern about the possible health effects of exposure to EMF, we support and fund medical, scientific, and industry research on EMF. It is PG&E policy to consider EMF in the design, planning and construction of new and upgraded facilities.

E15-2 cont'd

E15-3

The Project proponent is responsible to ensure that PG&E's existing rights of interest in the properties (easements, leases, permits etc.) affected by Delta Wetlands Project are not diminished. Diminishment of PG&E rights could include impairment of access, diminution of the full enjoyment of our rights (i.e. modification/expansion), or creation of site conditions that impact PG&E's ability to operate our gas and electric facilities (i.e. Habitat Conservation Plan, creation of wetlands, grading).

E15-4

The expansion of existing facilities, required to serve the Delta Wetlands Project, which have been "grandfathered" under statutes or standards enforced since the construction of that facility may require updating the facility to current standards. The impact of updating these "grandfathered" facilities is added substantial costs and time delays in providing service to the proposed project.

E15-5

The project proponent will be responsible for all or part of PG&E's costs associated with modifications or improvements to PG&E facilities resulting from this project.

## Chapter 3E: Affected Environment and Environmental Consequences Utilities and Highways.

This chapter of the DEIR specifically addresses the impacts on Gas Facilities and Transmission Pipelines as a result of the proposed project. Although this sections' contents are an improvement over previous documentation, many of the statements which have been credited to PG&E personnel have been taken out of context and do not support the conclusions which have been drawn in the Draft EIR/EIS. Specifically the March 14, 1988 letter from Marvin Bennett and the April 26, 1991 letter from James Stoutamore which commented on the NOP and DEIR for previous versions of this project explain PG&E's use of and bring up serious concerns about the proposed flooding of Bacon Island which have still not been adequately addressed. Since that time, PG&E's knowledge and use of our two Gas Transmission Lines across Bacon Island have changed.

This response will attempt to re-emphasize those points which require additional clarification, correct those statements in the DEIR which are either no longer true or were never true and provide information on impacts not considered in previous documentation.

### Affected Environment: Gas Facilities and Transmission Pipelines - Bacon Island

PG&E continues to maintain and operate the 22 inch L-57B across Bacon Island and it remains our only connection between our McDonald Island Gas Storage Field and the rest of our transmission system. This pipeline, however, is utilized during the entire year either to deliver gas for storage to our McDonald Island Facility or to withdraw gas from our McDonald Island Facility. This facility is critical to our normal year round operations and must be available at all times in order for PG&E to reliably meet our customers gas load. The portion of L-57A across Bacon Island is presently not in operation, however it is still being maintained by PG&E for future use.

Although both facilities are adequately weighted for "temporary" flooded conditions, neither facility was designed to operate in a continuously submerged environment. Many necessary maintenance practices presently occur on an ongoing basis for both facilities across Bacon Island and would be impeded by flooding.

## Impacts and Mitigation Measure of Alternative 1: Gas Facilities and Transmission Pipelines - Bacon Island

PG&E asserts that the Alternative 1 proposal will definitely result in the need for new facilities and an increase and substantial alteration of maintenance on the existing pipelines on Bacon Island. Additionally, the flooding of Bacon Island will increase the risk of structural failure of the pipeline which would have serious and unacceptable consequences in PG&E's ability to supply gas to Bay Area customers.

**External Corrosion**: Structural failure can have many causes. The risk of external corrosion has not been addressed in the DEIR. Corrosion mitigation programs do not guarantee that there will be no corrosion. Especially in the highly corrosive conditions that will likely exist under the proposed cyclic flooding, a much higher level of corrosion monitoring will be required. This monitoring may include various electrical surveys and physical inspections of the pipe condition. Each section of pipeline must be capable of being walked its entire length for survey and inspection purposes. The pipe may require excavation periodic intervals to inspect for external corrosion and the presence of bacteria which result in MIC (microbiologically induced corrosion). Over time,

E15-6

E15-6 cont'd

Mr. Sutton and Mr. Monroe December 20, 1995 Page 6

the pipeline coating will deteriorate and thus require more frequent monitoring for corrosion.

**Structural Modifications**: The DEIR indicates that because L-57B is concrete coated it can withstand flooding of Bacon Island with no damage. Although the existing concrete coating on L-57B will prevent it from floating to the surface in the event that Bacon Island becomes temporarily flooded, it will not guarantee that the pipeline will remain stable in a continuously submerged environment. Changes in the soil density, adhesion and specific gravity could allow the pipe configuration to shift based on external forces. A long term submerged condition has not been adequately analyzed and presents many uncertainties which cannot be adequately mitigated without relocation.

Levee Stability: The DEIR indicates that levee stability would be monitored at the locations of Gas Transmission Line crossings and that problems would be corrected by Delta Wetlands per Appendix D2 "Levee Design and Maintenance Measure". This document has not been included in the DEIR for PG&E inspection and review. Due to the critical nature of this facility PG&E has a monitoring procedure in place for both the levee crests and the resulting strain in our L-57B pipeline from levee settlement. Both levee crossings on Bacon Island have been shown to have significant existing stress and PG&E is very concerned about additional settlement which will be caused by buttressing of the levees. Existing monitoring equipment may not function properly in a submerged condition while construction work required to replace sections of pipe which are overstressed would be very difficult or impossible in a completely flooded environment.

Routine Maintenance: The DEIR indicates that routine maintenance would not impacted by flooding Bacon Island and that inspections could occur during "dry" periods. Although the existing cathodic protection system would continue to operate in a flooded condition, it would be impossible to adequately monitor the performance of this system while the island is flooded. (See External Corrosion). The central concern regards the definition of a "dry" condition and the requirement that PG&E be guaranteed a sufficient "dry" period on a minimum of an annual basis to perform necessary routine maintenance activities. Based on those results, additional time for more detailed investigations as-well-as any repair or replacement work which may be required. Presently there are not specific provisions for these requirements in the DEIR. Delta Wetlands must be required to remove all standing water from Bacon Island and drop the phreatic

E15-6 cont'd

Mr. Sutton and Mr. Monroe December 20, 1995 Page 7

surface to below the bottom of pipe depth of L-57B for our maintenance and inspection work for a period of 3 months during each summer.

Line Rupture Repair: The DEIR indicates that PG&E's method of repair for a line rupture inside Bacon Island would be to bore a new line under the island. This method of replacement is not technically feasible. Due to the fact that adjacent Mildred Island is already flooded, any new bore would have to span approximately 3.96 miles from McDonald Island to Palm Tract. This distance far exceeds that which the technology of directional drilling is presently capable. Accordingly, the bores would have to be made in sections off barges and utilize underwater construction techniques to lower and weld the sections together under water. Construction of islands in Mildred and Bacon Island might be required for boring equipment, requiring substantial expense, potentially significant environmental impacts and special federal permits. Because of these expected difficulties, it would likely be more practical to install a new pipeline around both Mildred and Bacon Island. Temporary repair would probably involve underwater construction techniques for the installation of a repair sleeve or new pipeline section. As indicated in the DEIR and previous documentation "Given PG&E's current operating procedures and equipment, underwater repair would not be a feasible alternative if a leak were to occur during water storage." Repair of a line rupture under flooded conditions would be lengthy and would impact PG&E's ability to meet customer needs.

Line Rupture during Winter Storage: The DEIR indicates that "there is little likelihood of a line rupturing on Bacon Island when water storage operation coincides with critical gas line operation". This statement is untrue and can be refuted based on the many erroneous assumptions on which it is based.

- 1. Emergency ruptures can be the result of numerous causes and contributing factors. This pipeline is the single highest pressure pipeline in the PG&E Gas Transmission System and operates up to 2160 psig. Any significant flaw or damage could result in a rupture. As already indicated, external corrosion, third party damage, internal corrosion, metal fatigue, stress, cracking, impact, etc. can lead to a pipeline rupture. It would be inaccurate to conclude that these unforseeable situations would occur only during times when water storage operation is not required.
- 2. Although annual maintenance work can detect problems, significant time and resources are required to further define corrosion, coating failure or bending stress problems and then repair or replace the affected pipeline sections. Many circumstances could arise when immediate repair is necessary to protect

pipeline integrity, public safety and service reliability, which will not wait until it is convenient for either PG&E or Delta Wetlands.

- 3. As already indicated, the Delta Wetlands Alternatives do not provide for a guaranteed dry period in which PG&E would have complete access to pipelines on Bacon Island.
- 4. The statement in the DEIR indicating that "use of the line crossing Bacon Island is only critical during these peak hours or days" is false. Gas Line 57A and Line 57B are integral to PG&E's normal operations of the McDonald Island Underground Gas Storage Field and PG&E's Gas Transmission System in general. The cyclic volumes available from McDonald Island are used to meet PG&E gas customer loads during the winter months and are used to store gas during the warmer months. Since L-57B is PG&E's sole connection to McDonald Island, any interruption would be unacceptable and place PG&E's ability to meet gas demands for our customers at risk. During summer operations, any extended outage would prevent PG&E from filling the storage field to required pressures prior to the winter load season.

Impacts and Mitigation Measure of Alternative 1: Gas Facilities and Transmission Pipelines - Summary of Project Impacts and Recommended Mitigation Measures

**Impact E-3**: Increase in the Risk to Gas Lines Crossing Exterior Levees on Bacon Island

The DEIR indicates that "No mitigation is required" because settlement and erosion monitoring and control measures would be implemented". The specifics of this plan in Appendix D2 were not available in the DEIR for PG&E's review and comment. PG&E's experience with levees on McDonald Island have proven that levee fill work can substantially increase the rate and amount of settlement of delta levees with resulting strain on pipelines at the crossing locations and changes in direction. Significant increase in pipeline strain would require replacement of pipe at areas of high strain. Additionally, levee settlement added to the existing strain resulting from historical settlement increases the likelihood of a pipeline rupture at these key locations.

**Impact E-4**: Increase in PG&E's response time to Repair a Gas Line Failure on Bacon Island.

E15-6 cont'd

The DEIR indicates that "No mitigation is required" because there is little likelihood of a line failure occurring when water storage operations are concurrent with peak gas demands". In fact, this is the most likely time during which a failure would occur due to the fact that most failures are not totally random events. Those not caused by direct 3rd party damage are likely to be caused by corrosion or other pipeline flaw exacerbated by the pipelines environment. Cyclic flooding and drawdown of Bacon Island could contribute to movement of the pipeline or the surrounding soil either across the island or through the levees themselves. The delta levees in general are most vulnerable during the winter months when the water table and hydraulic forces are at their highest. Further, PG&E's "peak" gas demand occurs every year and lasts from approximately November 15 though March 15. Thus at a minimum, one third of the year is highly susceptible to gas transmission interruption as a result of a pipeline rupture.

Because the pipeline is utilized year round, a line rupture will, in all cases, have a significant and unacceptable impact on the operation of McDonald Island and will limit our ability to provide safe and reliable service to our customers. Based on our existing cycles and the possibility for future counter cycles (withdrawal in summer, injection in winter) a pipeline rupture at any time during the year will have a significant adverse impact on the McDonald Island Gas Storage Field.

PG&E's ability to repair a rupture of a gas transmission line on Bacon Island when in a flooded condition remains very difficult to predict prior to knowing the exact location and extent of the failure. As indicated, the placement of a new line could not occur by directional boring and access to the existing line would be limited to underwater repair techniques. Our experience with locating and mapping other facilities in the delta prove that the poor visibility underwater and the specialized equipment required would make such an attempt risky, expensive and time consuming at best, if at all feasible.

#### Additional Items:

**Future Plans**: PG&E purchased the Rights-of-Ways across Bacon Island for use in the installation of pipelines to transport natural gas. PG&E reserves the right to expand our existing facilities on Bacon Island to increase the pipeline transmission capacity between McDonald Island and our Brentwood Terminal. One of the most likely alternatives for the installation of additional pipeline facilities would be to parallel the L-57A & B corridor across Bacon Island. An "incremental" build of a proposed L-57C would allow PG&E to expand capacity on an "as-needed" basis in the future. The flooding of Bacon Island would make

E15-6 cont'd

the installation of a new line in this corridor impossible without guarantees of a significant "dry" period which would allow for pipeline installation and commissioning as well as directional drilling to neighboring Palm Tract and to McDonald Island.

#### **Summary of Gas Transmission Issues:**

The only way to fully mitigate the impacts to PG&E's Gas Transmission pipelines on Bacon Island would be to reroute these facilities across adjacent islands and reconnect them to our facilities on Palm Tract. The increased risk to the integrity of these lines at levee crossings and the limitation in our ability to access the lines for either maintenance or emergency repair is unacceptable to PG&E due to the critical nature of these facilities. Provisions for a guaranteed dry period would allow for inspection, maintenance and minor repair activities to occur on an annual basis but would not address the emergency repair issue or PG&E's right to utilize this existing right-of-way for future expansion.

#### **Update PG&E Distribution List:**

Presently there are four PG&E personnel on the distribution list, three of which should be dropped from distribution due to reorganizations and personnel changes.

#### Please remove:

- 1. Mr. Shan Bhattacharya V.P. of T&CS
- 2. Land Superintendent PG&E Walnut Creek
- 3. Mr George Rowe Northern Pipeline Operations, Antioch

Please keep or add the following people:

Mr. Kim Sloat - Manager PG&E - Gas System Maintenance 375 North Wiget Lane Walnut Creek, California 94598

Mr. Frank Dauby - Pipeline Engineer PG&E - Gas System Maintenance 375 North Wiget Lane Walnut Creek, California 94598 E15-6 cont'd

Mr. Chris Ellis - Land Project Analyst PG&E - Building and Land Services 5555 Florin - Perkins Road Sacramento, California 95833

Mr. Rick Moss - Attorney at Law PG&E - Law 77 Beale Street P.O. Box 770000 San Francisco, California 94777

Ms. Leslie Day PG&E - Stockton Division P.O. Box 93095201 Stockton, California 95201

Mr. Don Murray PG&E - Diablo Division 1030 Detroit Avenue Concord, California 94518

Mr. Ron Calvert
PG&E - Transmission Planning
Mail Code N3B
245 Market Street
San Francisco, California 94105

Thank you for the opportunity to comment on this document. If you have any questions regarding this information please do not hesitate to call me at (916) 386-5097.

Sincerely,

Christoffer Ellis Land Project Analyst

bcc: Ron Calvert
Frank Dauby
Leslie Day
Buck Jones
Loren Loo
Rick Moss
Don Murray
Mike Schonherr
Kim Sloat
Scot Wilson

#### **Pacific Gas and Electric Company**

- **E15-1.** Issues regarding the cost and schedule for relocating Pacific Gas and Electric Company (PG&E) facilities are beyond the scope of the NEPA and CEQA analysis for this project and would need to be negotiated privately between Delta Wetlands and PG&E.
- **E15-2.** The terms "transmission" and "distribution" were incorrectly used interchangeably in the 1995 DEIR/EIS. As noted by the commenter, the electrical lines on and in the vicinity of the project islands that are discussed in relation to Alternative 1 on pages 3E-9 and 3E-10 of the 1995 DEIR/EIS (pages 3E-9 through 3E-11 of FEIS Volume 1) should refer only to distribution lines. The same is true of the discussions on page 3E-1 under "Summary", on pages 3E-15 and 3E-16 under the summary of impacts of and mitigation measures for Alternative 3, and on page 3E-19 under the discussion of impacts of the No-Project Alternative (pages 3E-1, 3E-17, 3E-18, and 3E-21, respectively, of FEIS Volume 1).

It is unknown whether a substantial increase in electrical capacity would be required to serve the proposed Delta Wetlands facilities (siphons, pumps, and recreation facilities). As described in Appendix 2 of the 1995 DEIR/EIS, siphon and pump facilities on the reservoir islands would be powered by either electricity or diesel. For purposes of impact assessment, the analysis of potential project effects on utilities assumed that some increase in electrical service may be needed under project implementation. The 1995 DEIR/EIS assessed the potential effects of project implementation on existing electrical systems serving the project islands, including the possible need for increased electrical capacity to serve new facilities. See Impacts E-5, E-6, E-7, E-19, E-20, and E-21 in Chapter 3E. The following text has been added to Impacts E-6 and E-20:

It may also be necessary to relocate or upgrade electrical transmission and substation facilities to serve new project facilities; any relocation or upgrade of electrical substation facilities (50,000 volts and above) may require formal approval from the California Public Utilities Commission (CPUC). If, when specific design details are submitted, the CPUC determines that the NEPA and CEQA documentation already completed for the Delta Wetlands project does not cover site-specific environmental impacts in enough detail, it may require additional environmental documentation before providing approvals.

Issues regarding the cost and schedule for relocating PG&E facilities, including any needed changes to existing substations, are beyond the scope of the NEPA and CEQA analysis for this project and would need to be negotiated privately between Delta Wetlands and PG&E.

**E15-3.** Because there is no scientific consensus on the health and environmental effects of electromagnetic fields, no additional information needs to be added to the analysis. The lead agencies acknowledge PG&E's policy to consider electromagnetic fields in the design, planning, and construction of new facilities.

- **E15-4.** This is not a comment on the environmental effects of the project; no response is required.
- **E15-5.** See response to comment E15-1.
- **E15-6.** The commenter is referring to information and analysis in the 1995 DEIR/EIS that was replaced by the 2000 REIR/EIS. Chapter 7, "Natural Gas Facilities and Transmission Pipelines", of the 2000 REIR/EIS presented an updated description of PG&E's gas facilities and an analysis of potential effects of the Delta Wetlands Project on natural gas pipelines that cross Bacon Island (see Chapter 3E of Volume 1 of this FEIS). The analysis identified mitigation to ensure continued safe operation of PG&E's Line 57-B and potential future operation of Line 57-A where these lines cross Bacon Island. The recommended mitigation includes anchoring Line 57-A if necessary; monitoring levee settlement and subsidence where the pipelines cross the Bacon Island levee and implementing corrective measures to reduce the risk of pipeline failure during levee settlement; providing facilities for annual pipeline inspection; and providing for relocation and access to PG&E's cathodic protection test station.

PG&E submitted comments on the 2000 REIR/EIS; see responses to Comment Letter R16.

## Section F. Public Hearing

# Public Hearing WATER RESOURCES CONTROL BOARD STATE OF CALIFORNIA and U. S. ARMY CORPS OF ENGINEERS

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Subject:
Public Comments on Proposed
Delta Wetlands Project and
Draft EIR/EIS

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Held in Auditorium, Secretary of State Building Sacramento, California

---000---

Wednesday, October 11, 1995 10:00 a.m.

A L I C E B O O K
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7	ART CHAMP, Chief, Regulatory Branch,
8	Army Corps of Engineers, Sacramento District
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11	ED ANTON: Chief, Division of Water Rights,
12 -	Water Resources Control Board
13	State of California
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L	WEDNESDAY,	OCTOBER	11,	1995,	10:00	A.l	И.
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- 2 ---00--
- 3 MR. CHAMP: Good morning.
- 4 I am Art Champ. I am Chief of the Regulatory Branch
- 5 with the Army Corps of Engineers, Sacramento District.
- I am here with Ed Anton from the State Board to hear
- 7 your comments on the Draft EIR/EIS on the Delta Wetlands
- 8 Project.
- 9 This project involves modification to four islands in
- 10 the Sacramento-San Joaquin Delta for the purposes of water
- 11 storage and habitat improvement.
- 12 A little later we will hear from Ken Bogdon with a
- 13 more detailed project description.
- 14 The Corps of Engineers is involved in this project
- 15 because of Section 10 of the River and Harbor Act of 1899
- 16 and Section 404 of the Clean Water Act.
- 17 Permits are required under these acts for the
- 18 placement of structures in and over a water of the United
- 19 States and for fill in waters over wetlands.
- We determined an EIS under the National Environmental
- 21 Policy Act would have to be prepared prior to our decision
- 22 on this project based on its scope and its impacts.
- We are also currently evaluating endangered species
- 24 impacts under Section 7 of the Endangered Species Act with
- 25 the National Marine Fisheries Service and the Fish and

- 1 Wildlife Service.
- I am joined here today from the Corps of Engineers by
- 3 Jim Monroe. He is in the back of the room. He is Chief of
- 4 our Delta Regulatory Office and also the Project Manager on
- 5 this project; and Dave Tedrick -- I don't see Dave right now
- 6 -- there he is, who also works in our Delta Office with Jim.
- Before we proceed to receive comments, I would like
- 8 to establish a few rules for the meeting.
- 9 First of all, this is not an adversarial proceeding.
- 10 There won't be any cross-examination of speakers. We want
- 11 to hear what people have to say. We want your comments on
- 12 the alternatives, the content and the clarity of the
- 13 document.
- We are not in a position at this time to make a
- 15 permit decision; therefore, we are not interested in
- 16 comments with regard to our decision as to whether the
- 17 permit should be issued or denied at this time. We will be
- 18 holding hearings later and there will be further opportunity
- 19 to provide input on the decision that should be made, and
- 20 that opportunity will occur after the final EIS is
- 21 distributed.
- When you came in you should have received and
- 23 completed a blue attendance card. If you wish to speak, you
- 24 should have so indicated on that card. Speakers will be
- 25 called generally in the order that the cards were received.

- 1 If you didn't receive a card, please raise your hand at this
- 2 time and one will be brought to you.
- 3 We need those cards not only for our attendance list
- 4 but for the speakers.
- 5 When you come up to speak, please come to the table
- 6 at the other side of the stage, state your name and the
- 7 organization you are representing, and then, summarize your
- 8 comments.
- 9 If you have written comments, please leave them for
- 10 us and they will be entered into the record. There's no
- 11 need to read your comments into the record. Written
- 12 comments will suffice.
- The record will be open until November 21 for written
- 14 comments and I assume everyone knows where to send those
- 15 comments. I will give the address later on.
- 16 At this time, Mr. Anton has some opening remarks
- 17 also, and then we will hear from Ken Bogdon with a project
- 18 description, and Mr. John Winther, the President of the Delta
- 19 Wetlands.
- MR. ANTON: Thank you.
- I am Chief of the Division of Water Rights of the
- 22 State Water Resources Control Board.
- The State Water Resources Control Board is the State
- 24 lead agency under the California Environmental Quality Act.
- The document that we are looking at is a joint

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- 1 EIR/EIS with both CEOA and NEPA.
- We are involved because the project needs a water
- 3 right from the State Water Resources Control Board in order
- 4 to operate its water conservation features.
- I do want to urge you to address your comments to the
- 6 EIR/EIS. There will be a separate water rights proceeding
- 7 at which we will consider the EIR/EIS as completed and
- 8 consider all other aspects of a water rights proceeding.
- 9 If you are providing lengthy comments, I would urge
- 10 you to submit them in writing as well. It is much easier
- 11 for us to deal with them and thoroughly address your
- 12 concerns if they are in writing.
- I also want to mention that we do have a court
- 14 reporter present and a transcript will be prepared. If you
- 15 want a transcript, you should make arrangements for a
- 16 transcript directly with the court reporter.
- 17 The State Water Resources Control Board also has
- 18 several staff that are working on the project here in case
- 19 you want to talk to them at a later time.
- Jim Sutton and Jim Canaday are working on the
- 21 environmental aspects of the project. We have Dave
- 22 Cornelius working on the water rights aspect of the project,
- 23 and Barbara Leidigh, who is our Senior Staff Counsel,
- 24 working on the particular project.
- That's all I have to add at this time.

- 1 At this time, we can go to Ken Bogdon from Jones &
- 2 Stokes, who will tell us a little bit about the project.
- 3 MR. BOGDON: I am going to speak from here so I can
- 4 work the overhead.
- 5 Again, I am Ken Bogdon and I work for Jones & Stokes
- 6 Associates. I'm the Project Manager for preparation of the
- 7 environmental documents for the Delta Wetlands Project.
- 8 Jones & Stokes Associates was hired by the U. S. Army
- 9 Corps of Engineers and the State Board to prepare all the
- 10 environmental documents for the Delta Wetlands Project.
- I am going to go over two things today. I am going
- 12 to go over the project description very generally that was
- 13 analyzed in the EIR/EIS, and then I am going to talk a
- 14 little bit about the organization of the EIR/EIS.
- I want to point out that some of the features of the
- 16 project are highlighted on posterboards in the back of the
- 17 room, if anybody wants to look at them and browse through
- 18 them. We are not going to cover the project description in
- 19 detail, and also, of course, there's a detailed description
- 20 in the EIR/EIS.
- 21 The Delta Wetlands Project is located on four islands
- 22 in the Central Delta. These islands are Bacon Island,
- 23 Bouldin Island, Holland Tract and Webb Tract.
- 24 Bacon Island and Webb Tract are called reservoir
- 25 islands because they are the main features for water

- 1 storage. The reservoir islands, as I said, Bacon Island and
- 2 Webb Tract, will involve the diversion and storage of water
- 3 year round when water is available according to the permit
- 4 conditions that will be applied to the project, and they
- 5 will store water for the purpose of discharging for sale to
- 6 either export or outflow to meet estuary requirements.
- 7 The habitat islands will involve the seasonal
- 8 diversion of water to create wetlands and wildlife habitat,
- 9 and also, enhance wetlands wildlife habitat that exist on
- 10 the islands.
- 11 The habitat islands will be managed according to a
- 12 Habitat Management Plan, an HMP as it is called in the EIR.
- 13 This HMP was designed to fully compensate for the effects of
- 14 the reservoir islands on wetland and wildlife habitat.
- This HMP was designed not only by the scientists at
- 16 Jones & Stokes Associates, but the State Board and
- 17 Department of Fish and Game were directly involved in
- 18 developing the HMP in consultation with the Corps and the
- 19 Fish and Wildlife Service.
- Other features of the Delta Wetlands Project include
- 21 strengthening and improving all the levees of the four
- 22 islands. They include interlevee systems for shallow-water
- 23 management on the reservoir islands. During times of non-
- 24 storage, shallow water will be managed in the interlevee
- 25 system on the reservoir islands which may have some wetland

- 1 benefits.
- 2 There will also be recreation facilities located on
- 3 the perimeter levees of all four islands. These recreation
- 4 facilities will include boat docks, both for the interior
- 5 levees and exterior in the channels and they will support
- 6 boating year round and duck hunting during duck hunting
- 7 season.
- 8 There will also be a private airstrip located on
- 9 Bouldin Island to support recreation.
- There will also be additional siphon and water pumps
- 11 added to the reservoir islands, Webb Tract and Bacon Island.
  - 12 The EIR/EIS analyzes four alternatives. Alternatives
  - 13 1 and 2 analyzed in the EIR/EIS are two variations on the
  - 14 two island reservoirs, two island Habitat Management Plan
  - 15 projects, and those are both considered in the proposed
  - 16 project of the project applicant.
  - Alternative 3 is a full-capacity alternative and that
  - 18 will include full storage on all four islands with habitat
  - 19 mitigation separate from the four-island project.
  - There is also a no-project alternative which is a no-
  - 21 permit alternative for NEPA purposes. It's the project as
  - 22 if there would be no permits issued by the State Board or
  - 23 the Corps.
  - There was a different project proposed by Delta
  - 25 Wetlands in 1987 when they first applied to the State Board

- 1 and the Corps for their permitting. This project involved
- 2 all four islands that would have a seasonal water-storage
- 3 feature, and then, also, a seasonal wetlands feature every
- 4 year, and this is not the proposed project anymore and is
- 5 not analyzed in the EIR/EIS.
- 6 So, to talk a little bit about the organization of
- 7 the EIR now, the EIR is organized into two volumes.
- 8 Volume 1 of the EIR/EIS is the actual environmental
- 9 impact analysis of the EIR and the EIS. It includes a
- 10 summary which has also a summary table summarizing all the
- 11 impacts and mitigation measures for all the alternatives.
- 12 There is a Chapter 1 which is just an introduction.
- 13 Chapter 2, which is the project description and
- 14 description of the alternatives.
- 15 Chapter 3 contains an overview of the impact
- analysis, the net methodology that's used in the
- entire document for the resource impact analysis.
- 18 Chapters 3-A through 3-O are actual resource impact
- assessments for the different resources analyzed.
- They go from water supply, water project operations,
- 21 right down through air quality effects of the
- project.
- Chapter 4 is the permit and environmental review
- 24 requirements that are associated with not only the
- lead agencies, but also, cooperating and responsible

- 1 agency decisions that are involved with the Delta
- Wetlands Project.
- 3 Chapter 5 is a list of the preparers.
- 4 Chapter 6 is the glossary chapter.
- 5 Seven includes the distribution list for all those
- 6 who received the EIR/EIS on the initial distribution.
- 7 Volume 2 of the EIR/EIS contains technical
- 8 appendices. These are supplemental information for the
- 9 different chapters of the project. They are supplemental
- 10 information on the project description. There is also data
- 11 on all the modeling that was performed and there's
- 12 supplemental information on some of the other processes that
- 13 are going on.
- 14 Copies of the biological assessments for the Fish and
- 15 Wildlife Service consultation and the National Marine
- 16 Fisheries Service consultation are included as well as a
- 17 copy of the alternatives analysis for compliance with
- 18 Section 4 of 4(b)(i).
- 19 There is an executive summary that is available and
- 20 the executive summary is a very general description of the
- 21 project and the project impacts. It does not summarize the
- 22 impacts in detail as the summary in the EIR/EIS does.
- As was stated already, the purpose of the meeting and
- 24 the purpose of Jones & Stokes' attendance at this meeting,
- 25 is to receive your comments. It is not to respond to your

- 1 comments.
- 2 I did not bring the particular experts who are
- 3 authors of the different resource chapters here today to
- 4 respond to questions. We will take back your comments and
- 5 help the lead agencies prepare a formal response to your
- 6 comments or questions, and will also assist in amending the
- 7 Draft EIR/EIS where appropriate.
- 8 So, with that, if you need to obtain a copy of the
- 9 EIR/EIS, there is information on how to obtain that at the
- 10 desk up there, and if you have any questions in relation to
- 11 the EIR/EIS process or any other questions on how Jones &
- 12 Stokes was involved in the preparation of this document, I
- 13 will be around at the end of the meeting, or you can pick up
- 14 a card and I will be glad to talk to you.
- 15 So, thank you.
- MR. CHAMP: Thanks.
- MR. BOGDON: If you want to use the overhead here,
- 18 let me know, and if you need to point out a certain feature
- 19 of the project, we can put back the overhead with the four
- 20 islands on it.
- 21 Thanks.
- MR. CHAMP: Mr. John Winther, President of Delta
- 23 Wetlands, would like to make a brief statement.
- MR. WINTHER: It's normally a cliche' to say I am
- 25 happy to be here, but after nearly ten years of developing

- 1 this Delta Wetlands Project, we are clearly in a stage of
- 2 making great progress.
- And the first thing I would like to do is thank a few
- 4 people, the lead agencies, of which you have heard earlier,
- 5 are the Corps of Engineers, and I would like to thank Jim
- 6 Monroe, who is hiding out someplace; for the State Water
- 7 Resources Control Board, Jim Sutton and Jim Canaday, Dave
- 8 Cornelius, Jerry Johns and Barbara Leidigh.
- 9 There's been a lot of heavy lifting over the past
- 10 several years in terms of getting this report out and I am
- 11 not using that term figuratively, although there is a lot of
- 12 heavy lifting when you lift the document.
- I would also like to thank the management and staff
- 14 at Jones & Stokes -- there's too many to name.
- As you have heard, Ken Bogdon is the Project Manager
- 16 and there's dozens of staff people who are specialists and
- 17 have provided input into the document.
- The only other part of the overview that I think is
- 19 important is that when we began this project in 1985, the
- 20 State -- not just the State Project but the State was short
- 21 on water supply. In the 11 years that have followed, very
- 22 little new water has been developed, and I think
- 23 appropriately the proper minds in the water business have
- 24 recognized that a good deal of water should have been and is
- 25 now being applied to the environment, but the demand remains

- 1 and we view the Delta Wetlands Project as one that can
- 2 provide a significant source of new water.
- 3 Certainly, it will not solve the problem but will
- 4 lead toward a solution.
- 5 And we are committed, of course, technically we are
- 6 required, to do it without significant impacts. But we are
- 7 committed from a business sense to move forward with a water
- 8 project that is environmentally sensitive and to that end we
- 9 have been meeting with environmental groups to keep them
- 10 tuned in to where we are as we move along.
- 11 After some difficult starts, when we finally got the
- 12 right people in the right places with the Department of Fish
- 13 and Game, we have made great headway with the Department of
- 14 Fish and Game and we are very proud of the Habitat
- 15 Management Plan that Ken briefly described.
- 16 It is clearly a benefit for wildlife and we are
- 17 working very hard with the fish agencies to come up with
- 18 some beneficial programs for fish.
- 19 Thank you.
- MR. CHAMP: Thank you, John.
- I want to reiterate something that Ken Bogdon said.
- If you need a copy of the draft document, there is a
- 23 sign-up sheet at the rear of the room. Please sign up with
- 24 your name and address and we will make sure one is sent to
- 25 you.

- 1 With that, our first speaker will be Roger Lefeburk.
- 2 MR. LEFEBURK: Good morning. My name is Roger
- 3 Lefeburk and I am First Vice President of the Shasta Lake
- 4 Business Centers Association.
- 5 Businesses directly located or involved on Shasta
- 6 Lake employ in excess of 650 people, over 200 of which are
- 7 permanent employees on the lake.
- 8 These figures do not account for the residual
- 9 employment for gas stations, restaurants, grocery and
- 10 outside services and businesses that support the lake.
- 11 Tourism on Shasta Lake, which amounted to 6.4 million
- 12 visitor days in 1994, is closely related to the water level
- 13 in Shasta Lake. When the water level is high, like this
- 14 year in 1995, recreational use of Shasta Lake is also very
- 15 high. As the water level drops in the reservoir, the
- 16 tourists go elsewhere.
- We view the Delta Wetlands Project as an opportunity
- 18 to provide a new source of water to downstream demands
- 19 without putting additional pressure on the water supply in
- 20 Shasta Lake.
- 21 It is very important to us that the Delta Wetlands
- 22 Project is producing wildlife benefits and that there are
- 23 no fisheries impacts without suitable mitigation measures.
- The Draft Environmental Impact Report for the project
- 25 appears to be very thorough and very comprehensive.

F1-1

My second concern is what sailors call fetch, fetch | F2-2

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being the effect of weather on a large expanse of water, the

greater the expanse of open water, the greater the wind and

wave action generated. It would appear that Frank's Tract

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1 You may or may not know people on Bradford Island and
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- 2 a lot of the other islands depend on their boats for
- 3 transportation to and from work. If, say, for instance,
- 4 Holland Tract were made into a five-mile-an-hour zone, this
- 5 would have a very detrimental economic effect on people
- 6 needing to go back and forth with their boats to work.
- 7 If you can imagine taking a portion if I-5 and
- 8 putting in a 30-mile-an-hour zone, this would be similar to
- 9 what we would experience as boaters on the Delta.
- 10 Thank you very much.
- 11 MR. CHAMP: Thank you, Mr. Allen.
- 12 The next speaker will be Kevin Wolfe.
- 13 MR. WOLFE: My name is Kevin Wolfe and I am actually
- 14 here representing myself.
- I have worked for over ten years for Friends of the
- 16 River. I worked to stop dams like the Auburn Dam project
- 17 and others, and I have always felt there is a real need for
- 18 an alternative means by which we can develop water in the
- 19 state that does not destroy large amounts of river canyon.
- 20 And knowing how difficult it is, I have been involved
- 21 in the augmentation program of the Central Valley Project
- 22 Improvement Act and know that it is a darn difficult thing
- 23 to develop water in the State of California at the present
- 24 time, a lot because of the environmental problems that come
- 25 from that.

I am also working with Friends of the Trinity River 1 and I know that there's going to be some water returning to 2 3 the Trinity, which means there will be less water flowing down the Sacramento and less water flowing to the Delta in 5 the future, and the ongoing future of the Delta is that 6 there's going to be ever-increasing environmental 7 restraints, at least that's my feeling on it.

Within that context, it seems like the Delta Wetlands 8 9 Project offers a real ray of hope for how to resolve some of For one thing, I think the biggest is the 10 these problems. 11 flexibility in operations, that it can turn on and off very quickly. It can fit that niche when the water is there, it 12 can also be pulled out and stored for later. 13 It doesn't 14 require the massive amount of changes in the South Delta 15 Los Banos or the Kern County water bank, 16 increasing amount of pulling out of water from the South Delta when the high water comes up and the entrainment that 17 18 happens in pulling the water south, so that within the 19 overall context of what is the future of the Delta, having water stored in the center of the Delta and being able to be 20 put on those islands, it seems to be a very sound management 21 22 and way of handling future problems.

I think the Delta Wetlands also offers monitoring benefits. Here we are, I am working with the water on line projects and we are doing an in-depth index of all the data

F3-1

- 1 that's in the Delta, and there's an awful lot of data in the
- 2 Delta, and yet, we still don't know when are the smelt
- 3 traveling, where are they, how do your operations affect the
- 4 different endangered species as they pass through, and it
- 5 seems we need continuous monitoring and sophisticated
- 6 monitoring, and database and modeling, and the Delta
- 7 Wetlands right smack in the middle offers and commits to
- 8 that kind of monitoring.
- 9 Within that, you know, it could be integrated and I
- 10 understand there is a commitment to integrate their efforts
- 11 within the overall State and Federal efforts as to what's
- 12 happening in the Delta, and I think that's a benefit that
- 13 should be taken up on.
- And so, in theory, when the young smelt are traveling
- 15 at a certain time, you turn off the pumps and you don't pump
- 16 into the islands and that kind of effort is needed all over
- 17 the Delta.
- 18 How do the fish travel? What is the overall biology,
- 19 especially of the endangered species?
- And then, the adoptive management plan part of it,
- 21 that it can adapt over time. That is, you can determine if
- 22 the Delta is global, weather conditions change and there is
- 23 a significant possibility that that can happen in the
- 24 future, and that if we do start getting more rain in the
- 25 winter during the snowpack and getting more floods coming

cont'd

- 1 down in the winter, we are going to need to have the
- 2 capability of pulling out more water when the water is
- 3 higher in those short periods of opportunity. That's again,
- 4 a benefit of having island reservoirs in the middle of the
- 5 Delta.
- 6 Within that context, well then, we have what is the
- 7 future of the Delta islands? Having studied this for ten
- 8 years and knowing they are oxidizing and going away at two
- 9 inches plus a year, what is going to happen to the Delta
- 10 islands? Who's got the money to fix up those island
- 11 levees? No one has the money.
- 12 And the agricultural future is not secure at all
- 13 there. As these winters get worse, if they do, or an
- 14 earthquake happens, or whatever happens, those islands are
- 15 going to go down all over, and then what do we have? A
- 16 giant pool of water smack dab in the Delta.
- 17 You talk about wind-erosion problems. Great! Knock
- 18 down some of the levees and then see what happens.
- 19 And within this context no one is committed to fix
- 20 the levees and there is no money to fix them, and
- 21 agriculture does not have the money to fix levees and they
- 22 are looking for a handout from the Federal and State
- 23 Governments.
- 24 The State and Federal Governments are not going to
- 25 fix the levees, so who is going to fix them? Well, private

- 1 industry, in making those reservoirs, is committing to fix
- 2 the levees like no one else will fix them, and that is
- 3 something that should be seriously emphasized.
- 4 If there is not a Delta Wetlands Project in the
- 5 Delta, who is going to fix the Delta levees? And if there
- 6 is no answer to that, then go with the people who will fix
- 7 them.
- 8 So, the habitat benefits, of course, seem to be
- 9 highly important, 9,000 acres of wetlands habitat, managed
- 10 for wetlands habitat, not just rice fields at the end of the
- 11 season managed as an adjunct to the rice fields, but two
- 12 islands pretty much dedicated to wetlands habitat in a
- 13 critical area in which historically that's where the
- 14 wetlands were.
- 15 The vast majority of the wetlands were right along in
- 16 that Delta and a lot of it is gone. And putting it back in
- 17 there seems to be filling a very important hole in the
- 18 Pacific Flyway where the wetlands should be occurring.
- 19 So, I am very positive about that, and the
- 20 recreational benefits that come with it; the sophisticated
- 21 fish screens, the need for fish screens on every island in
- 22 the Delta. We have got all this pumped onto Delta islands
- 23 and we don't have fish screens on most of those islands, so
- 24 we have got problems there.
- We have organic and the trihalomethane precursors

F4-1

- 1 coming off the islands. We have problems with existing
- 2 agriculture in the Delta that's not being resolved, and so,
- 3 we have a project that can resolve, not perfectly but an
- 4 awful lot of those problems, and I see it as a win-win all
- 5 the way down the line.
- 6 And I am very enthusiastic and see it as a
- 7 breakthrough in how does California start resolving its
- 8 water problems, getting at the real water in a manner that
- 9 benefits the environment.
- So, those are my overall comments. Thank you.
- 11 MR. CHAMP: Thank you, Mr. Wolfe.
- 12 That is the last of the speaker cards. Is there
- anyone else who would like to speak at this time?
- 14 Do you have any further comments?
- 15 MS. ALLEN: I do have one comment and that is that
- 16 Webb Tract is now used for agriculture, and over the years
- 17 there's been a lot of herbicides, fertilizers, pesticides
- 18 used, and I am wondering if the island is flooded, then
- 19 where do all those pesticides, et cetera, go? What happens
- 20 to them in the water, as well as, as my husband was saying
- 21 about the water table possibly coming up on Bradford Island
- 22 and the other islands?
- MR. CHAMP: Thank you, Ms. Allen.
- Okay, if there are no further comments, I would like
- 25 to adjourn this portion of the hearing.

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I would remind you that we will resume at 7:00 p.m.
1
    tonight for additional comments.
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           Also, I would like to remind you that written
    comments can be submitted until November 21 to the Corps of
4
    Engineers or the State Water Resources Control Board, and
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    those addresses are in the notices that announced this
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    meeting.
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           So, with that, I will adjourn this part of the
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9
    meeting.
           (Adjournment until 7:00 p.m.)
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1	WEDNESDAY, OCTOBER 11, 1995, 7:00 P.M.	
2	000	
3	MR. CHAMP: My name is Art Champ, Chief of	the
4	Regulatory Branch for the Corps of Engineers, Sacrame	ento
5	District.	
6	This is a continuation of the public meeting on	the
7	Delta Wetlands Project.	:
8	Do we have any speakers in the audience?	
9	Okay, since we don't have any speakers present,	[ an
10	going to close the public meeting.	:
11	The record will remain open until November 21	for
12	written comments.	
13	Thank you.	
14	(Proceedings concluded)	٠,٠
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1	REPORTER'S CERTIFICATE
2	000
3	This is to certify that I, ALICE BOOK, a Certified
4	Shorthand Reporter, was present during the Public Hearing of
5	the WATER RESOURCES CONTROL BOARD, STATE OF CALIFORNIA, and
6	U. S. ARMY CORPS OF ENGINEERS, held in Sacramento,
7	California, on October 11, 1995;
8	That as such I recorded in stenographic writing
9 .	the proceedings held in the matter of Comments on Proposed
10	Delta Wetlands Project and Draft EIR/EIS.
11	That I thereafter caused my said stenographic writing
12	to be transcribed into longhand typewriting and that the
13	preceding 23 pages constitute said transcription;
14	That the same is a true and correct transcription of
15	my said stenographic writing for the date and subject matter
16	hereinabove described.
17	Dated: October 17, 1995
18	$\bigcap_{i=1}^{n} A_{i}$
19	Alice Jook
20	ALICE BOOK
21	
22	
23	
24	
25	

#### Roger Lefebvre (Shasta Lake Business Owners' Association)

**F1-1.** The lead agencies acknowledge this comment supporting the project. Because these statements do not specifically comment on the environmental analysis in the 1995 DEIR/EIS, no response is required.

#### Paul Allen

- **F2-1.** The potential effects of the Delta Wetlands Project on seepage on adjacent islands were addressed in Chapter 6 and Appendix H of the 2000 REIR/EIS. See Chapter 3D in Volume 1 of this FEIS
- **F2-2.** See response to Comment E8-3 regarding the effect of wind-generated waves on the Delta Wetlands Project islands and response to Comment E8-5 regarding the establishment of an escrow account.
- **F2-3.** See Chapters 3E and 3L and responses to Comments C13-6, C13-7, C16-1, and E8-1 regarding the effect of the Delta Wetlands Project on the Delta Ferry Authority.
- **F2-4.** Since the 1995 DEIR/EIS was completed, the lead agencies have concluded formal consultation with DFG, NMFS, and USFWS on the effects of the Delta Wetlands Project on listed fish species. As part of the consultation process for compliance with the federal and California ESAs, USACE, the SWRCB, NMFS, USFWS, DFG, and Delta Wetlands agreed on the measures referred to as the FOC. The FOC specify parameters for diversion and discharge operations, allowable effects on channel temperatures, fish-screen design, construction restrictions, monitoring procedures, and other conditions of project operation. The FOC have been incorporated into the proposed project. See Master Response 4, "Impacts on Fisheries Identified in the 1995 DEIR/EIS and Adoption of Biological Opinions", for details about the formal consultation and discussion of the FOC and RPMs in the biological opinions subsequently issued by DFG, NMFS, and USFWS.
- **F2-5.** See response to Comment E8-2.

#### **Kevin Wolfe**

**F3-1.** The lead agencies acknowledge this comment supporting the project and reiterating the beneficial impacts identified in the 1995 DEIR/EIS. Because these statements do not specifically comment on the scope or content of the environmental analysis in the 1995 DEIR/EIS, no response is required.

#### Liza Allen

**F4-1.** The potential for presence of pesticide residues and waste disposal that remains on the reservoir islands was addressed in Appendix C6, "Assessment of Potential Water Contaminants on the Delta Wetlands Project Islands", of the 1995 DEIR/EIS. See responses to Comments C9-41 and E8-4 for more information.